

Backwoods



Home magazine

Nov/Dec 2000

No. 66

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practical ideas for self-reliant living

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The Coming American Dictatorship

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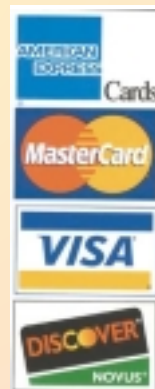
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ABOUT THE COVER

John Dean painted the redwood cover from a photograph, then added the small house to the forest floor. It’s easy to imagine the serenity of spending time in a house and forest like this. No neighbors within a 20-mile radius. When you step out the front door, you hear birds, the creek, even the leaves as they fall. There’s much work to do here, and wood needs cutting for the winter.



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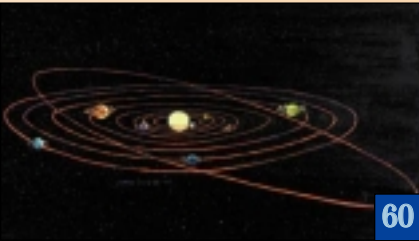
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Publisher's Note

Get a *Backwoods Meatball* FREE with a purchase of \$100 or more

Now and then you come up with an idea that is just too silly to let go. So it was with *Backwoods Meatballs*, which came to me during a restless night's sleep. "If they can make those stupid *Beanie Babies*," I told my wife, "then we can make *Backwoods Meatballs*." So without further ado, allow me to introduce *Mount Baldy* (me), *Head Flunky* (John Silveira), and *Jackie Out Backie* (Jackie Clay) in the ads on pages 17 and 73 of this issue. We'll be giving these fist-sized lentil and acrylic-stuffed fabric staff look-alike critters away FREE with purchases amounting to \$100 or more. In future issues we'll introduce similar look-alike critters based on everyone on the magazine staff from Annie Bananie (Annie Duffy) and Copper (Mas Ayoob) to Captain Gimp (Ron Graham) and Momzo (Ilene Duffy).

The idea for the magazine is to increase sales, but we also figured that readers who will be buying magazine items as Christmas gifts anyway for their friends would also appreciate the chance to get one of these little handmade stuffed critters. They'll be made by staff members during the lulls between deadlines. They actually look kind of nifty and are about the size of a tennis ball. Maybe these *Backwoods Meatballs* will join your select stash of *weird stuff* and be worth thousands of dollars apiece some day. Who knows!

At any rate, starting with this issue we'll enclose one of these *Backwoods Meatballs* FREE with any order over \$100. You'll have to take your chances on which one you get. To make it easier to qualify for one we're offering a lot of stuff at our lowest prices ever. They're listed in the ads on pages 16 and 17, and include:

- Any of our six anthologies for \$10 each. Buy as many or as few as you like.
- Our CD-ROM of years 1996-1999. By one at the regular price of \$39.95 and you get a second one for \$1.05. That makes it two for \$41.
- Jeffrey Fowler's solar electric book, *The Evolution of an Independent Home*, for \$10. It normally sells for \$24.95.
- Pocket-sized copy of the *U.S. Constitution* and *The Declaration of Independence* for \$3.
- A subscription gift certificate for \$17. This normally would cost \$21.95. This would be an inexpensive way to introduce a friend or relative, or even your local library, to the magazine.
- All the half-priced books listed on page 98.

With all that stuff, plus all the new books we have listed on pages 94 through 97, it should be pretty easy to come up with \$100 worth of purchases so you can get a *Backwoods Meatball*.

Homeschooling articles

We're also introducing a new type of homeschooling article with this issue (see page 60), one that will be for adults as well as kids. The articles will be on science, math, and history, since they are the key subjects to giving us an understanding of the world in which we live. Many of these homeschooling pieces will be written, at least initially, by me and Silveira since we have knowledge in these areas. The level of the articles will be at the high school level or above, as there are plenty of outfits out there already writing for the younger grades, and I think *BHM* readers are a lot smarter than the average magazine reader.

Although we've done a number of homeschooling articles in past issues, we've done nothing on a consistent basis. We intend to make a commitment to this higher level of homeschooling, as I think it goes hand in hand with being self-reliant. If the subject material sometimes seems to be rather deep, please persevere and it will become easier as you gain knowledge in unfamiliar areas. There's a great big ocean of knowledge out there that is usually just glossed over in high schools and universities. I purposefully chose an overview of physics as our initial homeschooling piece because it underlies all the other sciences.

Keep in mind also that most of John Silveira's historical articles in past issues are all excellent homeschooling pieces, even though we don't label them that, and many homeschooled high school teenagers study them. John is also a degreed mathematician and is knowledgeable in all the sciences.

New England office

How's this for another idea. I recently visited New England as part of a trip back to visit relatives in Boston, where I lived for the first 29 years of my life. Got to visit a couple of our editors while there, namely Richard Blunt in Connecticut and Oliver Del Signore in Boston. Couldn't quite make a connection with Massad Ayoob in New Hampshire, but I'll be back there soon.

What impressed me about the area, although impressed is not quite the word I'm looking for, was that it is largely a wasteland when it comes to self-reliance information. Nobody knows anything. They're also ignorant about guns, the Constitution, the current state of America's freedoms, you name it.

So I thought we'd open a New England branch of the magazine. Maybe we can bring a little bit of real knowledge to the Eastern heathens. We're exploring this possibility now. I'll let you now. — **Dave**

My view

Can an understanding of math and statistics save America's freedoms?

The other day John Silveira and I were walking by a gas station in Gold Beach, Oregon, where this magazine is located, when I remarked, "The price of gas went up again; that must be killing the motel business in this town."

Silveira replied, "They raised it a nickel. That's a dollar a tank. Most people reach their destination on a tank of gas, which means they need two tanks to get there and go back home. It's hard to believe people will change their vacation plans over an extra two dollars, yet they barely put up a fuss when the federal government takes a third of their paycheck in taxes."

"That's because people don't think like you," I said. "You consider the actual statistics involved, but ordinary people hear on TV that gas prices are high so they change their plans. The media never mentions how high taxes are."

As soon as I said it I realized I had just discovered the Holy Grail of how to save America's freedoms from being further eroded by big government—just get them to think the way Silveira thinks, namely, with the actual numbers, the math and statistics, that apply to the decisions they must make.

Math and statistics, after all, underly science. If a scientific theory is statistically more accurate than other theories, it is considered true enough by scientists, and they use it to advance mankind's knowledge of the world. A knowledge of statistics should work as well with social and political problems as it does with scientific problems. If all of us understood statistics, and were as honest with ourselves as scientists seem to be when they seek answers to scientific problems, I believe liberals and conservatives would see things differently.

For example, if liberals understood what the gun statistics say, namely that guns in the hands of law abiding citizens are used two million times a year to prevent crimes, including several thousand murders and many thousands of rapes, liberals would no longer favor gun control. They would tell government at all levels to repeal the 20,000 gun laws now on the books.

Conversely, if conservatives understood what the War on Drugs statistics say, namely that the drug war has made minimal impact on drug use but has spawned numerous laws that violate our Constitutional freedoms, conservatives would no longer favor the War on Drugs. They would tell the government to free our prisons' drug offenders, who comprise 66% of our nation's prison population, giving America the highest per capita incarceration rate in the world.

An understanding of math and statistics would also change the views of other groups in society.

For example, if senior citizens understood that the statistics on the social security trust fund show the fund will run out of money by the year 2012 unless federal taxes are raised on their grandchildren to about 40%, they would vote for a presidential candidate who promises to fix social security properly rather than one who promises to give them more benefits that must be extorted from their grandkids.

And environmentalists would look at endangered species differently if they understood that statistics show that 99.9% of all species that ever existed are now extinct, that it is nature's way of evolving. And they would act differently towards trees if they understood that statistics show that there are more trees now in America than at the turn of the century. They would tell the government to stop confiscating people's lands for national preserves that save bugs and trees.

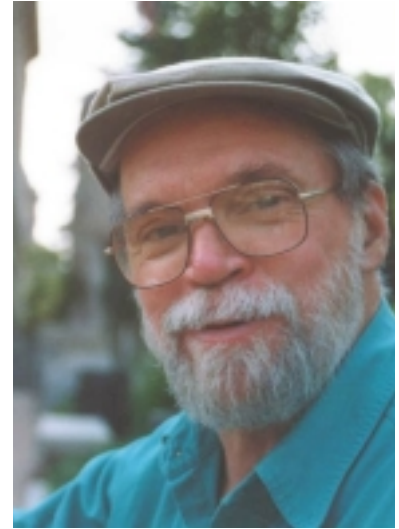
If people understood the statistics on education, namely that the public education system is turning out high school graduates who can't read, whereas private schools turn out graduates who can, they would vote to allow school voucher programs and other types of private school funding.

In all of these areas—guns, drugs, social security, the environment, and education—it has been the lack of an understanding of the actual statistical evidence that has led people to make the foolish decisions they have. Doesn't that make sense?

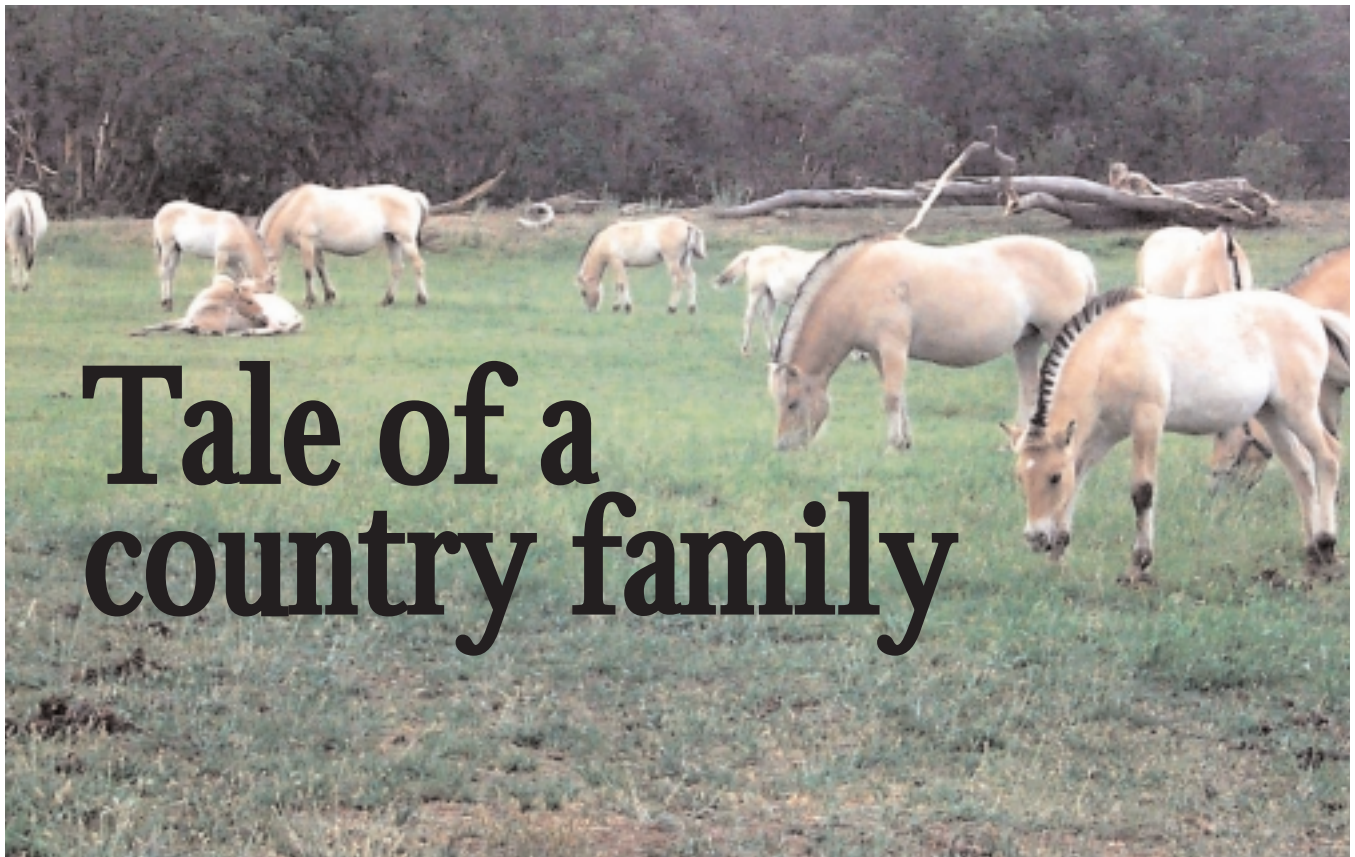
Sure, there are other factors in there too.

Some people, like politicians, are familiar with the statistical evidence but they choose to ignore them for selfish gain. Politicians want to get elected so they play to people's fears with anecdotal evidence about children being shot, drugs wrecking families, old people starving, old growth forests disappearing, and religious nuts educating our children. But an understanding of the actual statistics would allow people to see these anecdotal tidbits for the lies they actually are. Wouldn't it?

Am I missing something? If scientists use statistics to come up with the correct solution to problems, why don't we. Are we just stupid, or what?



Dave Duffy



Tale of a country family

By Rachel Baxter

Dave and Dianna Saleh (pronounced “Sally”) always knew they wanted to live a rural lifestyle. They both came from big cities before they met and fell in love, and each dreamed of living in the country. Their lives as single people and as a married couple with children are inspiring. It was not always an easy road. Presently, they live in southern Colorado on 42 acres of beautiful, gently sloping land, dotted with a few ponds and surrounded by pine and oak trees. I believe their story will give hope to others who are struggling to make their dreams of living an independent, self-reliant life a reality.

The single life

Dianna attributes her ideas about self-reliance and preparedness to her dad. He grew up poor and instilled in his kids the importance of being able to take care of themselves. “He always stressed survival techniques with us kids,” Dianna said. “I once helped him

build a cabin with trees we cut down that our donkey hauled for us. We were required to know knots, climb ropes and trees, gut animals, fish, and lots of basic safety. I’ve always enjoyed learning and using those skills and I get a great sense of security knowing that I can take care of my family and myself. There’s a sense of freedom in not being so dependent on things outside your control.”

“Geez, I hate to sound corny,” adds Dave, “but self-reliance is kind of in the blood. When I was a little kid, I loved survival stuff. I can remember a movie, that for me, was pure magic. It was called ‘My Side of the Mountain.’ It’s about a kid that runs away from home to live by himself in the wilderness. He has to find his own food and make shelter and clothing.”

Dave knew after he graduated from college and worked in a big city for a while that he would eventually live a rural lifestyle. Some years later he moved to a remote area of Colorado in the San Juan Mountains. “I was single for 37 years. I pretty much did what I wanted to do and went where I wanted

to go,” he says. “I spent a lot of time hunting, backpacking, and fishing. I didn’t mind that it was difficult in the winter. I had to cut and burn firewood, using a wood stove to heat the house.”

Dave believes we’ve forgotten the



Dianna at the dairy

art of providing for ourselves. Most people are extremely dependent on a fragile system for basic necessities. "Any number of things could interrupt services," he says. "It makes sense to always have an alternative, a back door if you will. Today you're a survivalist or right wing fanatic if you store food. Fifty years ago it was normal, everyday life in America to grow a garden and store goods for the winter."

Dianna divorced her first husband and moved from Seattle to a cabin in the woods in northwest Washington state with her five kids. "I felt so small and insignificant in the city," she said. "I completely loved the cabin and land. I had made a list of what I wanted: a well with gravity water that I could heat without electricity, a wood stove, fruit trees, pastures, and a creek. We'd have power outages that'd last for days and we were perfectly fine with it. I bought a little generator and used it to run the popcorn popper."

Dianna learned to hunt, "shooting three deer with three shots, dropping them where they stood." They had horses, calves, chickens, and turkeys, but she could not make ends meet with child support alone. She needed to find a job that would allow her to continue homeschooling her children.

"There was a dairy three miles from our home so I went there and volun-

teered to help with the milking until I could do it well," she says. "I was offered a paying job as soon as I could run a shift by myself." Dianna worked five hours in the evenings, milking 125 cows. It was hard, messy work. "I had really strong arms!" she laughs. She also delivered calves, gave shots, and treated the cows' ailments. During the day, she homeschooled her kids.

"I saved the life of one of the top milk-producing cows once when she'd torn open a milk vein and had lost gallons of blood," Dianna explains. "The cow collapsed and I pressed my hand over the hole. That stopped the bleeding. I sent the farm hand for a roll of duct tape and a washcloth. I'm sure I seemed crazy to them, but if the cow was dying anyway, I sure couldn't hurt anything. I folded the washcloth and held it tight over the wound and had the other guys help me slap the cow until she managed to wobble on her feet. I quickly wrapped the duct tape around and around her body to hold the washcloth tightly in place. We gave the cow water. She drank a lot. Within a half-hour, she was up and walking around. By the time the vet got there, she was acting normal."

Sometimes, Dianna would come home so exhausted she could hardly move. Her kids would gather around and take care of her. Even though those times were hard, they all have



Dianna and Dave's wedding

wonderful memories of living there. "We had our family motto, which we never forgot: 'All for one and one for all.'"

Romance

"We met as a result of a client's friend," said Dave. "He started telling me about this woman whose husband had left her. He told me she was 'very conservative and was really a great gal. And oh...by the way...she has five kids.'"

A four and a half year courtship began consisting of visits, letter writing, and phone conversations. Dave still lived in Colorado and Dianna in Washington.

"I warned the kids that Dave was single and never had kids so he wasn't used to a noisy house," Dianna remembers. "They spent most of his [first] visit happily tip-toeing around and quietly whispering and enjoying having this rather mysterious man around. I was pretty nervous the four or five days he was there, but there was something engulfing and captivating about his presence."

Dianna told Dave on that first visit that she was not a very good cook. She remembers him saying that if they



The Saleh ranch

got married, he'd do all the cooking. "The second we got married," she laughs, "he forgot how to cook. He forgot how to do the laundry too—very convenient."

In 1997 they became husband and wife, but decided not to ask the state for "the right to marry."

"The main issue with the marriage license," she says, "is that I believe marriage is a covenant between a man and a woman, and if they believe in God, it's also with God. The state isn't my father or my God or any other sort of spiritual or relational authority. I was also very disillusioned when my first husband left that the state didn't honor or enforce the contract that they had required in the first place. What



Melody with Ingrid

was the point of having one at all? It instilled a false sense of security that turned out to be very deceptive. It guarantees nothing and may even corrupt the essence of what marriage should be."

Kids and family

The Saleh family is a very close and happy bunch. The kids, Ryan, 18, Shea, 16, Melody, 14, Crystal, 12, and Kellen, 10, spend their days working with the horses, building fences, irrigating, doing chores around the house, and studying.

"We like to make the kids work. That's the most entertaining thing I do with the kids," Dave jokes.

The family spends time camping, snowmobiling, skiing, horseback riding, shooting, and mountain biking. They spend Christmas on 100 acres they own in Meeker, Colorado.

"It's a special place for us," says Dave. "In the winter, there's nobody out there. It's a very peaceful, relaxing place."

They talk to each other a lot, too.

"I love having discussions with my children," says Dianna. "They still value my opinions, but decide for themselves how to view life. Sometimes we sit and talk for hours. I learn much from them too. They help keep me honest, generous, and focused."

Melody, the 14-year-old, says she wants to be like her mom when she grows up, because her mom is whom she admires most in the world. Dianna says this is an indescribable honor.

"I have definite ideas about raising kids," said Dianna. "Because I not only treat them with respect, but also honestly *do* respect them and their feelings, it's natural for them to do likewise."

"My biggest goal is, when my life is over, to have been a good mother."

Homeschooling

Like most homeschooled children, the Saleh kids are independent, inquisitive, not afraid to question authority, and not governed by peer pressure.

Because they are given the freedom to discover what they love, their interests are amazingly varied. Crystal, for example, is a second degree purple belt in karate, plays volleyball, is learning Spanish, sings, writes music and loves science and art.

"These guys have directed their own education," says Dianna. "I have lots of materials, but they've picked their own subjects to study."

Dianna and Dave believe public schools crush children's insatiable love of learning that they come into the world with and that the system is another way the government conditions people toward a socialist mind-



Dave unhooks a fish

set.

"Our public education system has indoctrinated people for so many years into thinking their way is the best and only way, that it's almost impossible for many people to see an alternative," said Dianna.

The notion that homeschooled kids do not get enough "social skills" is not only wrong, it's absurd. It is almost impossible to develop meaningful relationships in an environment that stresses pointless competition, mindless obedience, rigid time constraints—all within a chaotic, prison-



Ryan, Shea, and Melody work on the irrigation system.

like atmosphere.

"If you're different in school, you have to be so different that you wind up rebelling against everything just to be yourself," Dianna says.

Crystal says she never thought public schooling would be interesting, and never felt she was missing anything.

Government

Dianna and Dave believe that politicians, by their very nature, are deceitful.

"The system's been perverted and it isn't anything like it was intended to be originally," says Dave. "In fact, I think it's everything it wasn't intended to be. Politicians have figured out that they can get themselves elected by the wealth that they give away that belongs to the more productive members of society. We've created a beast that we can't destroy."



Kellen with dying Barney

"I think many people have chosen to make the state their God," adds Dianna. "They think they should be in servitude to the state and the state should provide everything a God might, such as health, happiness, and prosperity."

Dave thinks that if the system continues as it has been, the financial structure will collapse, there may be a war, or they will "decide to get real ugly and nasty and come after everyone's guns."

Interests

Dianna and Dave have numerous interests that keep them busy. They



Dave with Sierra

both enjoy writing. Dave is working on a historical novel, Dianna writes nonfiction.

"I'm doing character development now," says Dave, "[The book] is pretty epic in its scope. It's an ambitious project. I hope I can pull it off."

"I love to write too," says Dianna. I have boxes of journals where I've used writing to sort out issues in my life."

Dave also hunts, builds things around the house, camps, and simply enjoys working with his hands.

The family raises and sells a most unusual and gentle breed of horse called 'Fjord' horses and Dianna runs the business.

Dianna also loves sewing, hunting, fishing, gardening, reading, and the outdoors.

"I love the beauty of the earth, she says. "It's humbling to think that there are sick and hungry people living in cardboard boxes and for some reason I'm able to live in this incredible beauty. I appreciate it every day."

Advice

"I'm sure there's a lot of people that want to move to the country," says Dave. "Really you can. Start by simplifying your lifestyle; people's lives

are far more complicated than they need to be. There are an infinite number of places people could relocate if they were resourceful enough. They could get by on a fraction of what they're making because they wouldn't have all the overhead."

"I think if it's important to you and you're semi-creative, you can always come up with ways to make money," says Dianna.

Dianna and Dave are happiest the farther out in the woods they are.

"I love how I live," Dianna says. "It's heaven on earth and I wouldn't do anything different." Δ



Crystal with Anitra

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Author's daughter, Crystal, with sleepy Silka

By Dianna Saleh

Once the mount of Vikings and the tractor of Norway, Norwegian Fjord horses are custom-made for the rural life or backwoods home.

An unusual and unique looking horse, the Norwegian fjord (pronounced "fee-YORD") horse developed in the harsh climate and terrain of Norway, where survival depended on being tough, brave, smart, and strong. It is believed that the Fjord horses are descendants of a wild, primitive Asian breed, the Przewalski horse, and that they migrated to Norway and were domesticated over 4,000 years ago.

Viking burial sites reveal evidence of the selective breeding of Fjords going back at least 2,000 years. The Norwegian people depended on them for transportation and as draft horses to do farm work.

I've always loved horses and have owned many, once favoring the Morgan breed for their versatility. When Dave, my husband-to-be, once suggested that we raise Fjords, I was immediately fascinated by the idea. The only Fjords I'd seen were pictures in books so I set out to discover more about these strange horses.

When I began my research, I found that there were not a lot of Fjord breeders, but I called all that I could find. I asked them what they liked about their Fjords and why they raised them. There were several consistent answers; they were all appealing and intriguing.

Fjord characteristics

The Fjord's greatest asset is its character. Everyone described them as the most friendly, gentle, safe, and calm horses they'd ever known. A wonderful family horse. I talked to people who were afraid of all other breeds, but not of their Fjords. They compared

their Fjords to dogs, as trusted companions. Some people described them as being "born broke," requiring very little training to ride. Fjords frequently are successfully trained by first-time horse owners, which attests to their easy and quiet gentleness. Some breeders said that even if the horse hadn't been ridden for a year or more, they could saddle up and ride with no trouble, a desirable quality in any horse. A frequent remark was that you never need to "catch" a Fjord, they always want to be with you. Fjords are also very stoic and tolerant, putting up with a lot of mishandling and discomfort before becoming impatient or annoyed. Everyone spoke of the fearlessness of their Fjords, how they're curious and self-confident, not flighty or easily spooked. They are relaxed with new and unusual things that would frighten many other horses. I've been told by Lauren Sellers and Walter Harvey from Snowy Mountain Fjords in British Columbia that one of

their Fjords once chased a Grizzly Bear from their campsite.

Unrivalled in versatility, the multi-purpose Fjord excels at many tasks, being as comfortable and willing to work under saddle as it is packing, plowing, logging, pulling a cart, or doing many other chores. These breeders appreciated the determination and whole-heartedness of their Fjords, as they worked with concentration and purpose, not easily distracted or discouraged.

Many Fjords do a great job working cattle, while others are competing and winning in the precise and formal riding style of dressage. Because of their steadiness Fjords are often used in riding programs for the disabled or for the sport of vaulting—gymnastics on horseback.

Their great hardiness makes the Fjords economical to own. Being natural foragers and doing well on little food, they live long, healthy, useful lives. As with most primitive breeds, Fjords have such strong hooves that many owners never shoe them. They adapt well to various climates, terrain, and altitudes, taking change in stride. They are fertile and prolific, reproducing easily.

Also in their favor is their great strength. Pound for pound they are stronger than the large draft breeds. It

is said that a Fjord has about three-fourths the strength of one of their giant cousins, even though they may weigh half as much. A Fjord standing 14 hands high and weighing 1,000 pounds may easily carry 250 pounds.

There are good horses of other breeds with all of these qualities, but they are more like individual exceptions within the breeds than they are true examples of the breed. The Haflinger breed is the Fjord's closest competitor.

Fjords do have some limitations. Most aren't likely to excel at competitive speed events such as barrel racing (though some do quite well). Fjords may not like flying over high jumps, but they would certainly give it a good try. For most backwoods work, farm



Author's son, Kellen, with Ingrid

and family activities, Fjords as a breed can't be beat.

As I learned more about these Norwegian Fjord horses, I became convinced that they had everything I desired to find in a horse. They aren't cheap, but are still reasonably priced. Their offspring can sell for enough to pay for expenses, with some to spare. Many breeders say their Fjords are worth \$2,500 when they "hit the ground" as newborns. Some weanlings go for four times that much, and

Norwegian Fjord horse resources

For anyone seeking more information about this breed, the Internet is a good place to start. There are also the Fjord horse registries in the U.S. and Canada which will provide information.

Norwegian Fjord Horse Registry
1203 Appian Dr.
Webster NY 14580
www.nfhr.com

Canadian Fjord Horse Association
Box 1335
Killarney, MB Canada R0K 1G0
www.cfha.org



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www.fjordhorse.net

I'd also love to answer questions or send out information. I can be reached at:
P.O. Box 1417
Bayfield, Colorado 81122
Dianna@fawncreekfjords.com
www.fawncreekfjords.com



Norwegian Fjord Horses have a distinctive appearance. They are all dun (golden brown) and have a light or white mane and tail. With very few exceptions, they have a black or dark brown dorsal stripe starting at the forehead and running to the end of the tailbone. The mane is typically cut in an upright arch with the black center hair a little longer than the lighter hair, giving their mane a "Mohawk" appearance. Many have "zebra" striping on their legs, and some have a shoulder stripe. Fjords have beautiful black-lined eyes that express their sweet nature. Most Fjords stand 13½ to 15 hands high. (Horses are measured in four-inch increments called "hands" from the ground to the top of the withers, where the neck rises above the shoulders.) Fjord horses typically weigh 900-1,500 pounds, and have a powerful, muscular build.

some for less. An adult Fjord horse trained to ride and drive (work in harness) may run from \$4,000-\$12,000, depending on quality, age, training, and other factors.

We started with a yearling filly and loved her. Soon we'd acquired 12 more, and we have had an additional 9 foals born to our mares. Parting with the ones we sell is hard, but most people are good, caring folks who give our Fjords great homes.

Our Norwegian Fjord horses have turned out to be everything we'd hoped for and much more. They've carried us for days hunting in the mountains, worked for us in harness, and given quiet, gentle rides to small children and adults. They have entertained us with their amazing personalities and creative antics. We've found them to be much easier to train than any other horses we've owned, our children doing much of the training. We breed for temperament and usefulness, and find that these creatures also bless us with great joy.

For a truly wonderful and satisfying horse for work, family, and friendship, consider the Norwegian Fjord Horse.

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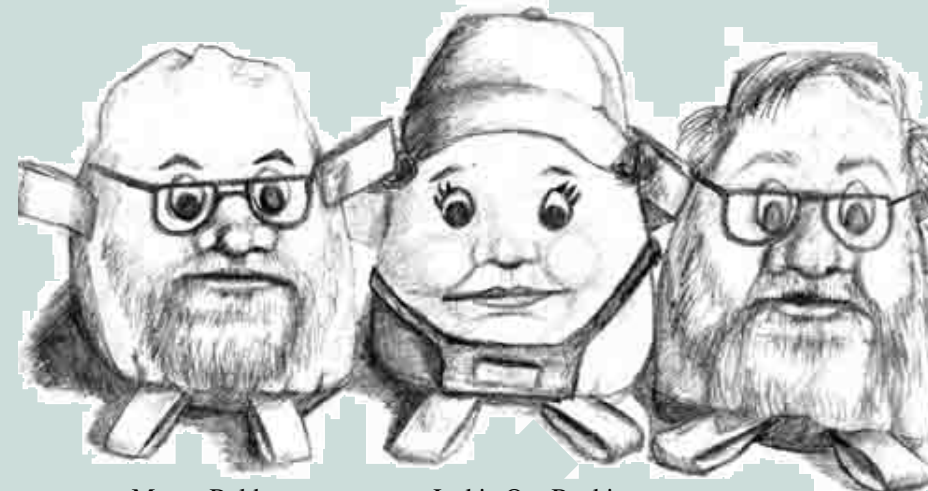


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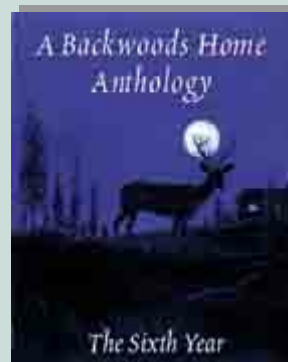
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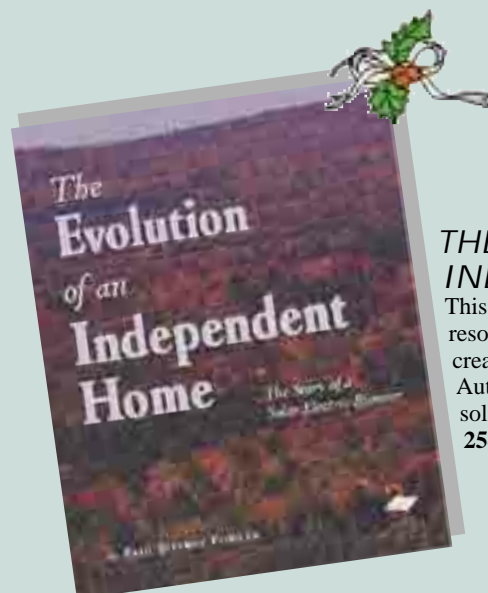
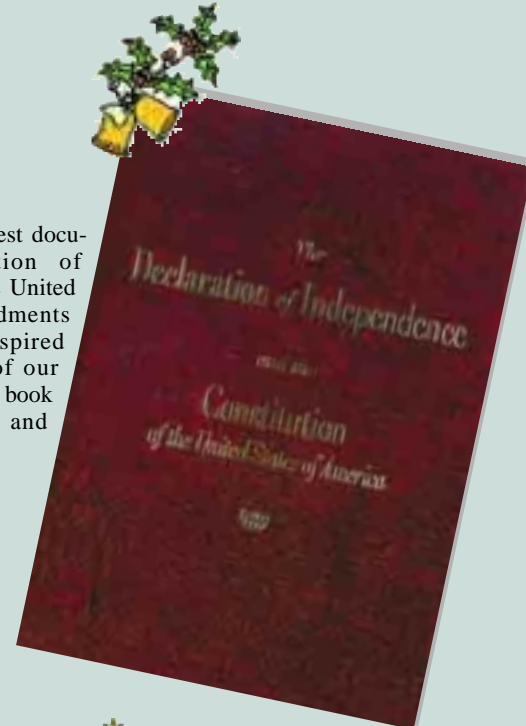
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Think of it this way...

By John Silveira

THE COMING AMERICAN DICTATORSHIP

Yesterday a voice asked, "Hey, Silveira!" I looked up. It was Dave Duffy, the publisher of *Backwoods Home Magazine*. He was fingering through his Rolodex. Without looking at me he asked, "Have you got Mac's number?" I knew he meant O.E. MacDougal, his poker-playing friend from southern California.

We had just gone through deadline and it had been frantic for weeks here on the editorial side of the magazine. Now there was a calm, the kind thunderstorms leave behind.

"I've got it on my computer," I said and started to open my address file.

"Forget it," he said. He was holding one of the Rolodex cards in his hand and he picked up his phone and started to punch in a number.

My address file was open by now. I closed it.

"What's up?" I asked.

"I want to see if he wants to come up. Maybe we can get him up here after deadline."

"Deadline's over," I said.

"Yeah," he said.

"Sounds good to me," I said and I turned back to my computer, but I listened as he left an invitation on Mac's answering machine. He told him he should come up, go fishing, kick back, drink beer—all the usual things.

When he hung up, he asked, "When's the last time he was up here?"

I thought about it. "Last fall, I think."

Like I said, that was yesterday. So, this morning, you can imagine my surprise when we got into the office and there was Mac asleep under the table that holds the printer. Dave had left his message barely 18 hours earlier and Mac lives 800 miles south of us. But there he was, under a blanket, on the floor.

Dave came in right behind me and stopped.

Mac opened one eye and looked at us.

"Are you okay?" Dave asked.

"Sure," Mac said and he got up from the floor like an old bull stretching his muscles.

"What are you doing on the floor? Why didn't you come up to my house or stay at one of the motels in town?"

"I got in around 2 a.m. and I'd had some brainstorm while I was driving. I wanted to do some stuff on your computer before I slept. When I finished...well..." He pointed to the floor.

"How'd you get in? Did I give you a key?" Dave asked.

"No."

"Well, how...?"

Mac looked at Dave.

"Oh," Dave said and turned on his computer.

Something was left unsaid about the way Mac got in.

"What have you been doing the last few months?" Dave asked.



John Silveira

"Playing poker."

"How's Carol?"

Carol was his girlfriend. I'd met her a few times when I used to live down in southern California.

Mac didn't answer.

"How's she doing?" Dave asked again.

"I haven't seen her in a few months."

"Oh," Dave responded. After a slight pause he asked, "Any new prospects on the horizon?"

"None yet...I've seen your 'End of the World' specials," Mac said. He was changing the subject. "They're pretty creative."

"Yeah, they're fun to do," Dave said as he put his stuff down and sat down

at his computer. It was going through the opening screens.

"I haven't seen you in almost a year," I said to Mac. "Did you survive Y2K okay?"

He smiled. "Yeah, talk about a bust. I never thought it would amount to much, but I didn't expect it to be a nothing."

"How's the world going to end next time?" Dave asked.

Mac gave him a quizzical look.

"You know," Dave added, "what do you think's going to be the next big problem that will *end civilization as we know it*?"

"Real or imagined problems?" Mac asked.

"That sounds like a trick question."

"There's no trick," Mac said. "It's just that some scenarios are imaginary, like the ones you see on the covers of the tabloids in the checkout line at the grocery market. But there are others that are credible and should be of concern."

"Okay," Dave said. "So let's make it real." He clicked on a screen icon and his computer started dialing up our Internet service provider.

"The coming American dictatorship," Mac replied.

Dave glanced back for a moment, then looked back at his monitor. "Is there a punch line to this?" he asked.

"I hadn't planned on one."

"Come on, do you actually think a dictatorship is possible in this country?" I asked.

"A dictatorship is possible anywhere. Throughout history dictatorships are the conditions under which most people have lived."

Neither Dave nor I said anything but I could tell Dave was losing interest in downloading his e-mail.

"Pick any time in history," Mac continued. "Then make a mental estimate of what percentage of humanity lived under dictatorships of one kind or another at that time. There have even been times when everyone on the planet lived under a dictatorship of one sort or another."

There was another brief silence as neither Dave nor I responded.

"And, as if we can't stand freedom, it seems as if every place men *have* won freedoms, the generations that followed them gave them away. Always. There's evidence that that's what we're doing now."

Using what are called Executive Orders, they create laws that are not only illegal and unconstitutional, but are created without the consent of the Congress or the people of the United States. Some of these edicts, believe it or not, explicitly suspend the Constitution for an indeterminate amount of time on the whim of the President.

"Now?" I asked.

"Yes."

"Us? We're doing it...in the United States?"

"That seems to be the way the wind is blowing."

"We have a Constitution that won't let that happen" I said.

"The Constitution will still be there and not a word of it will be changed nor will it have been amended. It will remain in place, a showcase to the world, but it will mean nothing."

"What's happening that makes you feel that way?" Dave asked.

"We're putting all the mechanisms in place that will make one possible. Two hundred years ago, our Founding Fathers had put as many obstacles as possible in the way of a dictatorship because they feared that unless there were obstacles, specifically, the safeguards in our Constitution, a dictatorship was inevitable."

"But even then, many of them weren't optimistic about our chances. When Benjamin Franklin was leaving the Constitutional Convention, a Mrs.

Powell of Philadelphia asked, 'Well, Doctor, what have we got, a republic or a monarchy?' Franklin replied, 'A republic if you can keep it.' He expressed the sentiment of many of the delegates.

"Today, as if we're bent on proving the cynicism in Franklin's reply was deserved, we're ignoring—no, we're actually throwing away—the safeguards hammered out among the delegates to that Convention. We're not changing the wording or the intent of the Constitution, we're just ignoring it."

"What's happening that makes you see a dictatorship coming?" Dave asked.

Mac put his hands behind his head and leaned back in his chair. He was thinking. "If I had to summarize what's happening," he said, "I'd have to say there's not just one thing we have to worry about; there's a whole bunch of things that are undermining our freedoms. But I'm not going to say there's a conspiracy, like some people do, though there may be. I really don't know. But I'd have to say that if there's a concerted attack on our liberties, whoever's doing it is a lot smarter than we are and he—or they—have my grudging admiration because these changes aren't being forced on us, we're just going along with them."

"So, give us some examples of what's making a dictatorship imminent," I said.

Six signs of the end of America's freedoms

Mac thought again. "There are six things that I'd say are sure signs that we're in trouble."

"First there's the steady erosion of our basic rights, the ones a lot of people call our constitutional rights, though that's not a good name for them. It's better to think of them as natural rights, the way our Founding Fathers did—or think of them as God-given rights if you want. Thinking of

them as constitutional rights is part of what is getting us in trouble. You have to realize that our Founding Fathers didn't think of them as constitutional rights because they knew that if our rights are provided by either the Constitution or the government, what the government gives, it can also take away. As natural or God-given rights, they're absolute. That's the way they were intended.

"The next problem we have is related to this erosion of our rights, but I'd treat it as a whole separate category. It's the unintended consequences of having created new rights—legal rights created by Congress and which Congress and bureaucrats have decided supercede or nullify our natural rights. These include the new rights that have come about as a result of the Civil Rights Act of 1964, the Environmental Protection Act, and the American Disabilities Act. Unlike our natural rights, which come to us at the expense of no one else, the new rights *have to be* provided by someone else. It's in *having* to provide them that our government has found ways to erode our natural rights.

"Third there's the unconstitutional bypassing of our legislative process by the President—not just this one in office now, but by all of the recent presidents.

"Using what are called Executive Orders, they create laws that are not only illegal and unconstitutional, but are created without the consent of the Congress or the people of the United States. Some of these edicts, believe it or not, explicitly suspend the Constitution for an indeterminate amount of time on the whim of the President.

"Fourth, there's the new rules and regulations imposed on businesses by our federal government by which the government circumvents our Fifth Amendment rights by insisting businesses spy on us. This includes banks, airlines, and even manufacturers of things like light bulbs and paper.

"Fifth is the creation of a professional, standing army. The Founding Fathers feared a professional army. They believed this country should depend on the militia—and I'm using the word 'militia' in the way they used it in the Second Amendment, meaning the body of citizen, not the National

With respect to the words general welfare, I have always regarded them as qualified by the detail of powers (enumerated in the Constitution) connected with them. To take them in a literal and unlimited sense would be a metamorphosis of the Constitution into a character which there is a host of proofs was not contemplated by its creators.

James Madison
1751 — 1836
4th President
of the United States
"Father" of the Constitution

Guard or some other professional organization. Professional armies lose their allegiance to the citizenry and have a history of becoming the accomplices of tyrants. It's highly unlikely there would have been any protests to the illegal war we fought in Vietnam if we'd had a professional army then.

"Last of all, but not least, our economy is no longer a true free market economy. It is now one of the socialist economies. We're now a fascist economy. For all of our posturing about how bad fascism is, we have created a fascist economy as a compromise between capitalism and communism.

"All of these changes are milestones on the road to tyranny. If they had all been invoked at once, we'd have seen them for what they are, an attempt to subvert what had once been the freest society history has ever seen. There'd have been a revolution in this country; blood would have run in the streets. But they've come over generations, and the American people, whose collective attention span is brief and

whose memory is even shorter, have come to believe that the way things are in this country today is the way they've always been."

"It sounds like you're saying you believe we will definitely have a dictatorship," Dave said.

"I'd like to be able to say we won't, but I believe we will. I don't know when, and I'll admit I could even be proved wrong. Maybe, even though we are putting all mechanisms for a dictatorship into place...maybe it won't happen. Though why we'd want to tempt fate by putting all the machinery for a dictatorship in place, I don't know. But if I had to bet, I'd say that sometime in the not too distant future we will live under tyranny. Sometime after that historians are going to look back to where the United States stood on the dawn of the new millennium and wonder if we'd gone mad or if we were just idiots. History is not going to treat us well; I can almost assure you of that."

"What do you mean we have a fascist economy?" I asked.

"Wait a minute, let's take these in order," Dave said. He was now sitting back in his chair and had his feet up on the desk that is usually behind him. He had a yellow legal pad on one knee and a pencil in his hand. He was taking notes. "You said there are..." on his legal pad he counted the points Mac had made. "...six things that are bringing on a dictatorship. The first, you said, is the erosion of our rights."

"You should get off line," Mac said to Dave as he pointed to the computer behind him.

"Oh, yeah," Dave said, and he closed his Net connection.

Losing our natural rights

When Dave turned back he said, "Okay, start at the beginning—losing our rights. First of all, who's to blame for all of this?"

"The politicians and the bureaucrats," I said.

Mac seemed to consider what I'd said.

"Is that who you'd blame?" Dave asked Mac.

Mac looked up at the ceiling again. I could tell this wasn't going to be an easy answer. "You know," he said, "for decades we've been telling ourselves that to make government right, all we have to do is to get those guys in Washington to change their ways. But I don't feel that way anymore."

"Why not?" Dave asked.

"Because for years, while I've been talking to people about this very subject, I've been telling them our government is illegal, that it violates Article I, Section 8, of the Constitution, that it tramples all over the Bill of Rights. And just recently it dawned on me that in all those years not one person has ever said to me, 'Our government is legal; it complies with the Constitution.' Instead, they tell me, 'Things are different now.' Or, 'We have different problems now.'"

"So?" I said.

"No one's defending the actions of the government as legal, constitutional, or even right. They're saying they know our government doesn't operate within the confines of the Constitution anymore, but they say that's okay because our problems are different from the problems the Founding Fathers faced. Or they just say the Constitution is old. Even Franklin Roosevelt said our Constitution was only fit for horse and buggy days and he never let it get in his way."

"What's your point?" Dave asked.

"The Constitution's being trampled on but *we the people* don't complain about it. We make no noise when the safeguards are breached. We don't protect our rights from the very entity our Constitution is meant to protect us from, our government itself. If we don't stop them, then it's our fault.

"The Constitution isn't there to tell us, the citizens, how to behave; it's there to set limits on government. We've got to hold them to it. For the

first 150 years or so of this country, it worked pretty well. But now the government ignores the Constitution whenever it's convenient for them to do so. And I mean government at all levels—federal, state, and the local level."

"But it still sounds like all we've got to do is to get government to change," I said.

"But they won't," Mac said to me.

"Why not?" Dave asked.

The condition upon which God hath given liberty to man is eternal vigilance; which condition if he break, servitude is at once the consequence of his crime and the punishment of his guilt.

**John Philpot Curran
(1750-1817)**

"Because the American electorate doesn't want them to change. We expect the so-called average citizen to obey the law, even when it's absurd or unfair, but we don't want our politicians or bureaucrats to have to obey it if we figure there's a payoff for us. And every time we allow exceptions to the Constitution, we do it because we expect some kind of payoff. You see, the worst enemy of liberty is not the tyrant without, it's the tyrant within us all."

"I still think it's the fault of politicians," I said.

"You can't blame politicians who we can *vote* out of office for what they do. We're the only ones who can change things, but we don't vote them out."

"You're saying the problems in this country can't really be blamed on the politicians or the bureaucrats; they're really our fault," Dave said.

"That's exactly what I'm saying."

"So we're bringing this tyranny down on ourselves."

"Yes."

"But the next batch we vote in will just do the same things," I said.

"Then you vote them out. These guys don't want to be one-term congressmen. How long do you think it'll

be before they start acting like the hired help and not our masters?"

"I think they'll just keep doing what they're doing," I said.

"No," Dave interrupted, "Mac's right, they want to be more than one-term congressmen. Two or, at most, three elections in which they're being sent home and they'll learn to do what we want."

"The public opinion polls say people want lower taxes, less government..." Mac said.

"But in the ultimate polls, the elections themselves," Dave said, "we keep sending the people back to Congress who are giving us more government, more regulations, more taxes."

Mac nodded.

"Then we *are* bringing all of our problems down on ourselves," Dave said.

"That's the way I see it," Mac replied.

"So, what happened?" Dave asked. "Where'd we go wrong? How'd we go from a country that was free to this erosion of our rights?"

"You can start with one simple premise: we all want to be free, but we want to dictate to our neighbors. There's always something our neighbors do that we don't like and that we think there should be a law against. I'm not talking about murder or robbery where there's a victim and upon which we can get almost universal agreement that it's wrong. I'm talking about gambling, prostitution, drug use, putting additions on your house, wearing seat belts, how children are educated, etc. I think there should be a law against something you're doing or not doing and you, in turn, think someone should make a law against something I'm doing, and..."

He paused for a moment. "...there's always a politician trying to curry both of our votes. So he'll try to get the laws enacted, laws you want imposed on me and laws I want imposed on you. So we get drug laws, zoning laws, laws about politically

Amendment IX

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

correct speech, guns laws, restrictions on businesses—you name it and somebody wants it outlawed or regulated and there's a politician somewhere listening. But you can't blame *him*. He's just doing what both you and I and all of our neighbors are trying to do to each other.

"But the net result is that we are imposing tyranny on each other, often in defiance of the Constitution and the guarantees in the Bill of Rights, and we create bureaucracies to manage and enforce our rules and these bureaucracies *benefit* from the existence of these new rules, these new laws. And, no matter how unconstitutional they may be, soon the bureaucrats themselves will fight to keep bad laws in place, even when you and I have seen the light and want those laws repealed."

"Have you got specific examples of this?" Dave asked.

"I gave you some: zoning laws, blue laws, speech laws, campaign finance laws, but the example you can learn the most from is the War on Drugs because, in the beginning, I don't think anyone foresaw where it would lead us.

"Drug laws started out as tax laws not long after the turn of the century. But we need to fast forward to 1934, when Prohibition was repealed, to see how they got worse. When Prohibition ended, there was the question of what the government was going to do with all the agents it had hired to run down the bootleggers, speakeasy owners, and rumrunners. The obvious answer was to send them home. But FDR was too *kind hearted* to throw anyone out of work once they were living off the largess of the taxpayers, even though, in his election campaign, he had sworn he was going to cut the size of

government. So he set this crew off to chase drug users.

"It was a practical decision. Prohibition had failed because it had been imposed on whites; whites wanted to drink so whites ended it. But whites didn't do drugs. Only blacks and Mexicans did. So Roosevelt turned the otherwise idle agents of the war on alcohol to pursuing drugs, and the rest was history."

"That sounds like blatant racism," Dave said.

"It was. Of course, no one foresaw the 1960s when white kids would start smoking pot, dropping acid, and snortin' coke the way their parents and grandparents had been swilling beer, wine, and bathtub gin. But suddenly, white America found itself throwing its own children and grandchildren in jails."

Amendment IV

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

"You've said before that the drug laws are unconstitutional," Dave said.

"They are. The federal government has no authority to make such laws. The 9th and 10th Amendments to the Constitution make it pretty clear that we can do with our bodies as we wish. The 14th Amendment says the states have got to leave us alone, too."

I grabbed a copy of the *World Almanac* from the bookshelf and turned to the Constitution. "What about the general welfare clause in the Constitution?" I asked.

"The general welfare clause is in the preamble to the Constitution. James Madison, the man most responsible for the Constitution and the author of the general welfare clause, said it is

Amendment X

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

merely a statement of the intent of the Constitution and that the rules the government has to follow to carry out that intent, as well as prohibitions which apply to how the government is allowed to operate, are contained in the Articles and the Amendments. If the general welfare can be used to justify exceptions to the Articles and Amendments, and many Congressmen and their constituents believe it can be used to do exactly that, then it's the only thing that matters in the Constitution.

"Freedom of speech? Freedom of religion? Freedom to bear arms? Congress can then disregard them by invoking the general welfare clause. Want to be President for life? Invoke the general welfare clause and you never have to leave the White House."

"I see what you mean," Dave said.

"Why didn't they stop once white kids were being thrown in jail?" I asked.

"In a cruel twist of fate, by the 1960s the antidrug campaign had become a huge industry. There were people who benefitted from it despite the fact that it is illegal and was ruining millions of lives."

"Who benefits from it?" Dave asked.

"The livelihoods of police, bureaucrats, judges, lawyers, and many others depend on drugs being illegal and remaining illegal. And, like many other industries, the drug prohibition industry is a growth industry; it grows by making more and more laws which are increasingly pervasive and harsher and have less constitutional basis."

...DICTATORSHIP

Continued on page 67

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A NATIVE AMERICAN FEAST

Venison and wild rice, baked squash with corn, wild greens, and hazelnuts, fry bread, and wild blueberry cobbler

By Jackie Clay

When the holidays roll around, a lot of folks get bored with the “same-old meal.” You know, turkey, mashed potatoes—the whole traditional meal. But some adventurous families might like to try something a bit different—something more in tune to their self-reliance.

As a family of mixed Indian heritage (as well as hardcore, traditional hunter/gatherers), we often turn to a feast day of a different setting.

Remember, though, that Native Americans did not celebrate “Thanksgiving,” but feasted with joy the fall hunts and stored crops, and moved to safe, snug winter camps, or saw their permanent home fortified against winter winds. This was, indeed, a cause for thanksgiving.

Venison and wild rice

1 venison boneless loin (backstrap), about 3 pounds
1 handful of wild onions
½ handful of wild garlic
2 quarts water
1½ cups dried mushrooms
2 tsp. salt
1½ cups cleaned wild rice

Sear boneless loin, with fat trimmed, in just enough shortening to get the job done, allowing about ½ pound per person. If the loin is too long to place flat in roaster or Dutch oven, cut in two. (Sear all sides.)

Add ½ cup cleaned, peeled wild onions (bulb end only), and ¼ cup cleaned, peeled wild garlic. Sauté lightly. Add water, mushrooms, and salt. Simmer uncovered for three hours.

Add wild rice, cover, and simmer for 20 minutes. Uncover and simmer for 20 minutes more or until rice is tender.

Each region had its own foods for feasting, and the recipes differed from tribe to tribe. Where Northwestern tribes feasted on salmon and whale, Southwestern Indians gathered around a bounty of tamales and chiles. (Chile is the correct spelling of the chile pepper in the southwest, as opposed to the “chili” of elsewhere. Chili is a dish, often composed of chilies, meat, and sometimes beans.)

For our Native American feast, however, let’s try one of our favorites, which is widely adaptable to any household or personal taste. This meal can be prepared in the traditional

Wild blueberry cobbler

2 cups dried wild blueberries (if using fresh or canned berries, use 4 cups)
½ cup sugar or honey

Topping:
1½ cups flour
1 tsp. salt
¼ cup sugar or honey
2 Tbsp. butter
½ cup milk

Place rehydrated blueberries (or fresh or canned blueberries) in baking dish and sprinkle with sugar or honey.

For the topping, mix all dry ingredients then cut in butter and add as much milk as is needed to make a thick batter. Spoon this on top of the berries and bake for about 1 hour at 350° F.

Serve hot with maple syrup, honey, or whipped cream.

way, by a fireside, using clean hot rocks and dropped into a clay pot (or even older, a cleaned paunch bag, propped up by several sticks driven into the ground), more modern camp cooking, or the way I most often make our feast, in a Dutch oven on our wood stove. The main course can even be done in a large crock pot, ensuring tender meat and very little work.

You can use any wild game meat—deer, elk, moose, caribou, or substitute a loin of pork or even a piece of tender

Fry bread

4 cups flour
1 Tbsp. baking powder
1 tsp. salt
1½ cups and a little more warm water
shortening or lard to deep fry

Mix dry ingredients in a bowl. Add water and mix thoroughly. Knead, adding more water or flour as needed. Dough should end up elastic and soft but not sticky. Pinch off balls the size of a small peach. Pat back and forth in hands until about ½ inch thick.

Melt shortening in heavy frying pan or heavy deep fryer. Heat until hot but not smoking. Carefully fry each bread in hot fat, turning till each side is golden brown. Drain on paper towels and serve hot with warm honey.

Baked squash with corn, wild greens, and hazelnuts

- 1 large sweet winter squash or 2 smaller squash, such as acorn (I prefer Native American squash such as Mayo Blusher, Hopi Pale Grey, or Española, which are sweeter and fruity tasting)
- 1 cup fresh raw wild greens, such as lamb's-quarters
- ¼ cup wild hazelnuts
- 2 cups sweet corn
- ¼ cup cranberries (optional)
- 1 Tbsp. honey or maple sugar for each squash half
- 1 Tbsp. butter for each squash half

Slice the squash in half and remove seeds. (Don't forget to save those seeds for your garden next year.)

Arrange on cookie sheet and bake ½ hour at 300° F.

Meanwhile, chop the wild greens medium fine and chop the hazelnuts very fine. Add these to the corn. I like to add ¼ cup of fresh cranberries for taste and color.

Spoon this corn mixture into each squash half. Add honey on top, then butter. This corn was traditionally dried green (sweet) corn, which was rehydrated before use, giving a sweet, slightly nutty flavor to the dish.

Bake until the squash is tender and serve very warm.

beef loin—whatever you have available.

Likewise, any mushroom will do, but we prefer wild mushrooms we have gathered during the spring and summer months. **(If using wild mushrooms, be absolutely sure you know what you are gathering and feeding to your family. Some are deadly.)**

I like dried morels or white meadow mushrooms. Dried, rehydrated mushrooms are traditional and give a richer flavor. You can use mushrooms from your produce counter.

In place of the wild onions and garlic, you could use domestic varieties, but you will be lacking flavor.

Once you taste this unusual holiday meal, you'll quickly see what the word "feast" really means. And, as you read the ingredients, you can easily see how well they fit into the lifestyle of self-reliant people. Δ

Sources for Native American squash seeds

Abundant Life Seed Foundation

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Masonry stoves — what's old is new

Margene Whitler Hucek

"To the uninstructed stranger it promises nothing."

Mark Twain

The "it" of Mark Twain's remark is the masonry stove which he discovered during his travels through Europe.

"It has a little bit of a door...which seems foolishly out of proportion to the rest of the edifice. Small-sized fuel is used, and marvelously little of that. The process of firing is quick and simple. At half past seven on a cold morning the servant brings a small basketful of slender pine sticks and puts half of these in, lights them with a match, and closes the door. They burn out in ten or twelve minutes. He then puts in the rest and locks the door...All day long and until past midnight all parts of the room will be delightfully warm and comfortable...its surface is not hot; you can put your hand on it anywhere and not get burnt.

"America could adopt this stove," he added, "but does America do it?...The American wood stove, of whatever breed, is a terror. It requires more attention than a baby. It has to be fed every little while, it has to be watched all the time; and...you are roasted half your time and frozen the other half."

Masonry stoves are still viewed as somewhat of a novelty in America, although there is a growing number of users who would concur with Twain's remarks. On the other hand, they have been used in other parts of the world for centuries. The Roman Baths were heated by them and, in China, masonry stoves heated floors and beds. Their remarkable qualities give them a clear advantage over the traditional iron wood stove.

The most obvious advantage is the way masonry stoves release radiant heat. Think of how it feels when you

touch a stone that has basked in the sunlight. The heat is warm, never hot enough to burn. The same is true for a masonry stove which can be made from stone, brick, or tile. Soapstone is thought by many to be the ideal material for masonry stoves since it is easily carved and has a tremendous heat storage capacity, 2½ times that of brick.



And, if you're used to feeding an iron stove loads of wood on a cold winter's day, you may doubt that only two short firings or one double firing a day is needed to maintain a comfortable temperature. But, unlike fireplaces and iron wood stoves that need to be burning wood to produce heat, masonry stoves store heat within the stove and slowly release heat into the room over a longer period of time. The greater the mass of stone or brick, the greater the capacity for storage of heat. The surface temperature is highest several hours after the burn. For that reason, a fire built in the evening will warm an area all night, and the stove will feel warm to the touch in the morning.

How masonry stoves work

Unlike the slow combustion of iron stove fires, masonry fires burn red-hot. The dense walls of the firebox intensify the fire's heat to 1,200 degrees F. At this point gases, from the burning logs ignite increasing the temperature to

2,000 degrees F. The fire's high heat eliminates most creosote buildup. Hot gases leave the firebox and travel through a maze of smoke channels within the stove. Because few gases escape through the chimney, masonry stoves more than meet any pollution standard. In fact, in Finland, which has stringent environmental standards, 90 percent of all new homes are heated with a masonry stove.

While the fire burns red-hot inside the stove, the surface temperature remains comfortable, ranging from 150 degrees F to 250 degrees F, much safer than the 500 to 800 degree flesh-burning temperature of cast iron wood stoves.

Europeans often design their masonry stoves with warming benches so that one can lean against them on cold days. In the Swiss and Austrian Alps sleeping platforms above the stove provide a cozy place to doze after a morning of skiing.

Masonry stoves are heavy, between two and three tons, and they need a sturdy footing of either poured concrete or concrete block. They are built on site by an experienced mason and need a chimney, preferably an interior chimney which is better insulated and therefore provides a more reliable draw.

Masonry stoves can be designed to include a bake oven, which is fired separately from the stove. After building two small fires in the baking chamber, the oven stays hot for hours. The even heat is ideal for baking bread or casseroles.

Twain wrote that it was "certainly strange that useful customs and devices do not spread from country to country with more facility and promptness than they do." If you're inclined to agree, it may be time to take a look at this new old-fashioned way of heating. Δ



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An Interview with Mick Sagrillo

Harnessing the Wind

By Michael A. Hackleman

(Mick Sagrillo is the founder of *Lake Michigan Wind & Sun*, a company that specializes in helping people repair and install new, used, or rebuilt wind-electric generators. He is the author of numerous articles that have appeared in magazines such as *Home Power*, *Backwoods Home Magazine*, and *Solar Today*, and he is a monthly columnist for the *American Wind Energy Association's Windletter*. He is currently the president of the *Midwest Renewable Energy Association (MREA)*, the organization that hosts the annual *Midwest Renewable Energy Fair (MREF)* in Amherst, Wisconsin. He teaches wind installation workshops at *MREF* and at *Solar Energy International* in Carbondale, Colorado.)



Mick Sagrillo

Mh: Mick, how did you get started in your work with wind energy?

Mick: I read your books, *Wind and Windspinners* and *The Homebuilt Wind Generated Electricity Handbook*. It's true. Your books had a big influence on me. At the time, I lived in northern Illinois with my wife, Lynn. It was a windy area, so windmachines were never very far from my mind.

Mh: Was this your first exposure to independent energy?

Mick: No, I actually built a greenhouse on my third story apartment porch in Chicago in 1970. In 1973 I built a number of breadbox-type solar collectors and another greenhouse, this time attached to the house we bought in northern Illinois. The first oil crisis occurred that fall, which was a wake-up call for our dependence on petroleum for electricity and heating. Of course, we were subscribers of several do-it-yourselfer magazines. I have first edition copies of *Lifestyle* and *The Mother Earth News*. These filled my head with ideas. I definitely

wanted to be self-sufficient.

Lynn and I moved to northeastern Wisconsin in 1978 and bought a farmhouse on five acres with the intention of homesteading. We gutted the house, then proceeded to rebuild it. We spent most of the first winter in our sleeping bags, and burned 800 gallons of home heating oil just trying to keep the inside temperature of the house above 50°F. While Lynn taught at the university, I stayed at home raising our daughter and building everything from a septic tank to a bathroom and shower. We super-insulated our home and put in a one-acre garden. We grew a ton of vegetables and raised beef, pigs, chickens, and turkeys.

Mh: When did you get your first windmachine?

Mick: In 1979, a friend bought a well-worn 1000-watt Wincharger. Instead of a folding tail, it had a brake



drum and a light gearbox with a fiber gear. We began rebuilding the Wincharger, but never finished the project. I still have it but I never put it up. I was still in my research mode, trying to connect with anybody who was working with wind generators. My first important contact was Joe Joddock, a Dakota Wind and Sun (DWS) dealer. He was a member of the Jacobs club, and the DWS was a Jacobs clone made in the late '70s. The Jacobs was a high quality, pre-REA wind-electric machine.

I then met a man who almost killed himself in 1980 trying to hoist a DWS he'd bought to the top of a tower. The

gin pole failed and the wind generator came crashing down, bending a leg of the tower. (A gin pole is a device that is bolted to the tower and works like a crane to hoist the windplant to the top.) This taught me the importance of quality hardware for working with these units. My gin pole weighs about 150 pounds. I wound up buying his damaged wind generator and tower, rebuilding them, and installing them on our homestead.

Mh: Let me digress for a moment for our readers. Mick, you eluded to “pre-REA” windmachines. The REA was the Rural Electrification Administration. It came about in 1937, during the Great Depression, and it was a government jobs program with the goal of bringing utility power to the farms in the midwest.

At the turn of the century, the voltage standard was 32V and dc. If you wanted to power electric lights or a radio, you had to be pretty close to the generating station or the line losses would be too great. There was no way to get power to the farms because they were so spread out. So, the farms were left to fend for themselves, using wind generators and/or light plants (standby generators) with batteries for electricity.

Tesla’s invention of the AC generator made it possible to move power over long distances with small losses, and eventually it was possible to supply utility-generated power to the farms. This was the REA’s mission. This action displaced many of the wind generators these people had been using. It was the availability of these used windmachines that attracted me and I recovered Jacobs and Winchargers on expeditions to the midwest, primarily Wyoming.

Still, I was based in southern California. I think you had it lucky, Mick. Everybody who was doing anything with wind power seemed to be back east.

Mick: I still had to travel long distances to reach any of them. I drove to

North Dakota in my VW van to work with Joe Joddock. I spent two weeks with him, rebuilding the DWS I’d bought from the man who nearly killed himself. I learned how to dip and bake armatures and cut down the commutators. I taught him how to work on VWs. It’s funny. He was a wind generator rebuilder who went on to work with cars, and I was, among other things, a VW mechanic who went on to work with Jacobs and Winchargers.

Mh: Whom else did you come across?

Mick: I contacted anybody who I could find with a wind generator, such as folks who wrote their stories in magazines like *Wind Power Digest* and *Alternative Sources of Energy (ASE)*. One person I never really had the privilege of meeting was Martin Jopp. Martin wrote a column for *ASE* magazine on how to rewind pre-REA windgenerators.

This was a time of experimentation. In addition to restoring the units to produce power at their original voltages, 32Vdc or 120Vdc, some folks were attempting to beef up the units to work with the Gemini synchronous inverter, the first of today’s grid-interfaced units. This seemed like a good way to avoid using batteries in the system. Just plug into the grid and spin the power meter backwards. We did get the Gemini units to work right, but it took quite a bit of work. It was a time of trial and error. I managed to eventually put a Jacobs on my 80-foot octahedron module tower and it still stands there today.

Mh: Were you making a living from windplants at this point?

Mick: I’ll answer that by saying it was a good thing that Lynn taught at the university. I had a lot of used windmachines by October of 1980. I needed parts to fix and sell them, so I got a lathe and other equipment and taught myself how to fix or re-manufacture the parts. It’s hard to hide a windmachine, so I had people spot-

ting me from the road and contacting me, wanting parts. I turned this into a business, *Mick’s Fix-It Shop*.

A lot of manufacturers came into existence during the energy tax-credit time. Wind energy got a big boost, but there was a downside. There were bad designs and a lack of good information. It was hard to find people to service a host of windplant models, and it got worse when the manufacturers disappeared after the tax credits ran out. I earned the reputation of being able to get stuff working. My business grew.

Mh: You founded *Lake Michigan Wind & Sun*. How?

Mick: Martin Jopp died in 1980. Someone near him bought all his tooling for Jacobs parts, plus a lot of inventory. After selling off all of the inventory, he called me. I bought it all from him, and in 1982 my business became *Lake Michigan Wind & Sun*.

Supposedly, I now had a few of the patterns and tooling Jacobs actually used in their factory. In retrospect, this was a mistake because I could do or was doing most all of this anyway, without needing to buy another person’s business. Still, I liked Jakes (Jacobs windplants). They required little or no service. They just went and went. Jacobs windplants had a good reputation with everyone.

Over the years, I’ve acquired a lot of the tooling and the patterns for the Jacobs windplants and own or have worked on every Jacobs’ model. Altogether, I figure I’ve got about 160 wind machines, of which more than half are from the pre-REA period. I figure I’ve collected an important piece of history.

The 6V wind plant was the first popular windplant dating back to about 1929. With radios, people on the farm had a door into the outside world. Initially, these ran off car batteries, which could be hauled off to town for recharging periodically. A side-effect of the automotive industry was the general store where these 6

(Right) A Jacobs windplant is wrestled into place atop a tower.
(Below) The view from 60 feet up



volt batteries could be recharged. Farmers quickly realized that a 6V windplant would also charge the batteries to power their radios and lights and more.

Mh: People are surprised when I tell them that the voltage standard on farms well into the 1940s was 32Vdc. Or that relatively small pre-REA windplants would power lights, motors, appliances, and tools throughout the farm.

Mick: I believe that the reason more people don't know about the history of electricity in the pre-REA period is the shame associated with the Depression. Still, many manufacturers today use time-tested elements found in these old windplants.

Generating electricity from the wind took a step up from 6V when equipment and technology were borrowed from the 32V systems used by the railroad and tug boats. Here, the availability of 32V motors, tools, and lightbulbs inspired the production of the 32V windplants. For the same power and wire size, a 32Vdc system has only about 1/10th the line losses of a 6Vdc system.

Reviewing this history reinforced the notion in me that the objective and reward was in the electricity generated by the windplant, not just selling the equipment. I've seen people invest all their money in a 4,000-watt windplant and then stick it on a 42-foot tower where it is unable to deliver its power. Unfortunately, people install towers with a height they're comfortable in climbing. Or they try to save money by skimping on the tower. These are big mistakes. Siting the wind system correctly is paramount to good performance.

Mh: Did you become a dealer?

Mick: At the time, manufacturers didn't want a dealer who sold competing manufacturers' windplants. I was interested in all windplants, so I was denied dealerships. I was more a repairer and installer than a dealer, although I sold numerous rebuilt and remanufactured wind systems. I had plenty of work. I figured it was because I had something good to offer. My brother thinks it was because I worked too cheaply. Eventually, however, I realized I could no longer be a one-man shop. I built

up the business to where there were five employees.

Mh: What is the minimum aaw that is needed to generate electricity from the wind successfully?

Mick: A 10 mph aaw (average annual windspeed) is often given as the minimum standard. It makes me shudder to hear it. It's way too high.

Some dealers unfamiliar with wind systems will suggest the installation of a wind-monitoring system for a year as a good way to evaluate the wind's potential. I don't agree. We don't use a monitoring system for assessing the potential of generating electricity from water power or solar power. Why do it for wind? Wind energy is complementary with solar energy through the year. Summer solar, winter wind. In my experience, a 7 mph aaw is enough for a hybrid system where solar-electric modules handle the summer power. The windplant is able to harvest winter weather.

Mh: Of course, you live in the mid-west, which is a windy area. What about other areas? Can you give me any rules of thumb?

Mick: Unless someone lives in the extreme southeastern portion of the USA, they've probably got useable wind. Sites located in deep valleys or in groves of 200-foot tall trees will be problematic, of course. Rules of thumb? Buy the tallest tower you can afford. The minimum height? The base of the windplant's rotor, or spinning blades, should be at least 30 feet above any obstacles within 500 feet of houses, terrain or trees for the life of the system. Remember, trees grow. No matter how much you water them, towers don't grow. So install today's tower for tomorrow's tree height. Of course, when you're 75 years old, you probably won't feel like climbing the tower. Today, it is straightforward to rig things so that the tower is easily lowered, the windplant serviced, and the tower raised again.

The site and mature tree height determines the minimum tower

height. For example, if your windplant has a 12-foot rotor, and you've got 50-foot trees, then your minimum tower height is 50 feet, plus 30 feet clearance, plus 6 feet for distance between the blade tip and the windplant itself. That's 86 feet. Allowing for tree growth, this site should use a minimum of a 100-foot tower.

Mh: As we both know, there is a nice benefit in extra tower height. The power in the wind goes up with the cube of the windspeed. Thus a small change in windspeed can result in a big jump in windplant power generation. For a given windspeed on the ground, the windspeed increases the further you go above the ground. For example, consider the availability of power for a windplant on a 36-foot tower versus a 96-foot tower. The output nearly doubles on the taller tower.

Mick: Exactly! Two wind generators at 36 feet would produce the same amount of electricity as the same model of wind generator at 96 feet. Except for micro turbines and wind generators with rotors smaller than five feet in diameter, taller towers are always the most cost-effective option.

That's why I said, "a minimum of a 100-foot tower." A 120-foot tower with a specific size of windplant usually proves to be more economical and yield more electricity than that provided by a bigger wattage of windplant located 20 feet lower.

Mh: What standards exist in the wind energy industry today to help people fit a windplant to their site?

Mick: That's a problem. There are few standards. Whatever standards do exist tend not to clarify the issues. I wouldn't call it misinformation, but it is arguably incomplete. Windplants are rated all over the place. The customer must understand the difference between power ratings (wattage output) and the windspeed at which this rated power is reached. To the manufacturers' credit, most do provide a number which represents the probable

energy production per month or year at different values of aaw. Still, these rely on the readings of the local climatological station, and the aaw values of the closest climatological stations describe your region, not your site.

Mh: It's revealing to calculate the power in an 18-mph wind versus a 25-mph wind. A windplant that generates 2,500 watts at 25 mph of windspeed will only produce roughly 750 watts at 18 mph. I always loved it that the Jacobs reached its power rating in an 18-mph wind.

Mick: The best criteria is the rotor diameter. A windplant harvests as much energy as the area its rotor sweeps. It's no different than a solar collector. One solar collector produces this much energy, two of them produce twice as much. Small changes in blade diameter can quickly double the swept area of a windplant.

Compare two windplants. One is an 1800-watt Jacobs with a 14-foot diameter rotor. The other is a 1500-watt commercially-available machine with a 10-foot rotor. The area of a circle is equal to the square of its radius multiplied by pi. So, the Jacobs has a swept area of roughly 150 ft² while the second windplant's rotor sweeps 75 ft². The wattage ratings suggest the two machines are comparable, but both in theory and practice, the Jacobs will outperform its competitor by at least a factor of two in average windspeeds. Why? It's got twice the swept area. A 40% increase in rotor diameter yielded a 100% increase in energy harvested from the wind. And since it fails in this example to stand on its own, wattage as a measuring stick is flawed.

Mh: And look what happens when rotor size drops lower. A windplant rotor with a 6-foot diameter (3-foot blades) sweeps only 28 ft² of wind. When will this windplant produce the rated power that your wattage per dollar evaluation revealed was a great deal? The answer is: at a much higher

windspeed. This information is not clearly presented in product literature. Small rotor and lightweight windplants touting big wattages must be more closely examined.

Mick: The bottom line is: which of these three windplants would you rather install at a marginal windsite? The windplant must be able to produce significant power at the windspeeds the site is likely to experience. Generally, small amounts of power generated the majority of time are of greater value than large amounts occasionally.

Mh: In essence, the ideal windplant for a low wind area is one which dips into the lower windspeeds for its power. This means a bigger rotor. Since solar-electric modules were rare and expensive at the time I started in wind energy, my initial focus was a wind-only system where you used a big-wattage, big-rotor machine to capture the rich energy of storm winds. My experiences have altered that view. A hybrid system designed to capture the energy of solar and wind and water as they're available through the year makes more sense.

It's always bothered me that the power curves on windplant product literature are so small. I wish they'd use tables. For example, it's difficult to figure out what wattage any wind-machine will generate in an 18 mph wind. I've had a windplant representative tell me customers are just confused by such information. I don't agree. If I had tables that showed the power production in 15, 18, 21, and 24 mph winds of every windplant available today, I would quickly be able to eliminate a whole host of windplants from further consideration for most sites. I believe manufacturers don't want to have it be that clear cut.

I like your rotor comparison. Looking at the windplants of the pre-REA period, the large-diameter rotors like those found in the Jacobs and Winchargers were the ones that proved successful.

Mick: In a hybrid solar/wind system, there usually isn't sufficient capacity in the batteries to absorb energy from storm winds. Or the timing is bad, with the wind arriving after the batteries have been charged by the sun all day. Whenever this occurs in a system, I suggest dumping this electricity into room heating or water heating. It's perfect. Every watt I generate with electricity is just that much wood I don't have to cut and haul.

Mh: On the west coast, we call this process "load diversion." The battery is a load, too. So, when it nears being full, switch on a secondary load such as a floor heater or immersion element. The simple and reliable method of doing this activates a relay to power up a load whenever a pre-selected voltage is reached. This switches on the load which runs directly off the battery bank for a few minutes. When the voltage drops below a pre-selected lower voltage (only a few volts different), the windplant's output should quickly replenish the slight drain on the batteries. This cycle is repeated for as long as the windplant's output exceeds the battery's ability to absorb it.

Generally, I've found that you don't want to power loads directly from the windplant. This is trickier than it seems and is only used in areas that experience strong winds of ample duration. Surplus energy isn't always of a quality such that it is useful or worth going after.

Mick, the wind power formula is useful for understanding the effect of variables like swept area, windspeed, air density, and windturbine efficiency on power generation. It predicts what's available. The windplant's design also contains variables. Will you talk about these?

Mick: You mean like airfoil efficiency and power curves for generators and alternators? Airfoil efficiency changes with windspeed, as does alternator or generator efficiency. Each windplant designer balances

these factors in different ways and this results in the wind generator's power curve.

It's a mistake for people to buy the windplant first. There are three questions that precede this event. One, how much resource is available at the site? Two, where will the tower be sited? And, third, how tall must the tower be to place the windplant above the turbulence produced by obstacles. Then, ask: What kind of windplant will work best here?

Mh: The trend in windplant design seems to be toward small rotors and PM (permanent magnet) alternators. In your experience, what's driving this transition?

Mick: Alternators are lighter than generators, eliminate brushes, and cost less to produce. A whole Bergey 1500 windplant might weigh 168 pounds. There is at least 100 pounds of copper in the armature and field coils of a Jacobs windplant of the same wattage. Of course, a lot of copper and complex windings in an armature costs money. The newer brushless alternators eliminate the parasitic load of field current by using magnets to generate high-density flux.

I think these benefits work for the manufacturer more than the customer. Yes, the brushes in a generator must be replaced every few years, but I think it's important to inspect your windplant occasionally, too. Bolts loosen up, adjustments change. If anyone expects to install a windplant for a homesite and forget about it, they shouldn't use wind energy. Periodic inspection is the cheapest way to operate a windplant. You can catch problems before they become problems.

There *are* windplants that will work unattended on remote mountain sites. However, they compromise the windspeed power curve in favor of reliability and being maintenance-free. There is no one size that fits all applications and aaw values.

Mh: I've seen advertising that shows a picture of one house with 3-4 small windplants along the roofline. I wonder if these folks have tried living in a house with this setup. I have. It gets old fast. Let's see. A vibrating device and a boxlike structure ...

Mick: ... is just a guitar. Yeah, a sounding box. Most annoying. Rotor blades are getting thinner, too. They are light and strong and designed to produce power at high rpm. But high-speed blades tend to be noisy. Sometimes, very noisy!

Mh: An alarming tendency with the smaller windplant designs is their liberal wattage ratings.

Mick: I know of one manufacturer who increased the wattage rating of a particular windplant by simply increasing the windspeed rating at which it would produce this power. This tactic helps the manufacturer who does it, but it doesn't help the end user who's looking at dollars per watt. How many kWh of electricity your windplant produces *must* be the measuring stick.

At *Lake Michigan Wind & Sun*, a big part of my work was evaluating wind sites. Some I could do at a distance. I was often sent a topographic map, a video, and pictures. Once I know the height and direction of trees, hills, houses, and other obstacles and the shape of the terrain, I can make the needed calculations and finish the evaluation. Here, the mathematics of wind energy is reduced to the aaw and tower height. In turn, these suggest the type and size of windplant, and the tower height. I'd tell people they could return the system if it didn't produce as much as I estimated. I never had one system returned.

Mh: Every windplant must protect itself against overspeed. A rotor spinning too fast can fail, with centrifugal forces tearing it apart. A generator that produces in excess of its upper current rating can overheat and fail mechanically or electrically. High windspeeds are usually the culprit, but

a full battery bank or even a blown fuse can result in overspeed at modest windspeeds. There are a number of ways to govern a windplant. Which method do you prefer?

Mick: The most elegant way is pitch-change governing, like that used on the Jacobs. This protects against both rotor and generator overspeed at modest or high windspeeds. Some windplants use the offset method of governing. If the rotor shaft is offset with respect to the axis about which the windplant rotates on the tower, the windplant will face sideways in higher winds. This is a method that is time-tested with water-pumping windmachines. Pitching the rotor up and back also works.

In addition to automatic governing, I like some kind of manual shutdown mechanism, too. With the Jacobs, a winch at the base of the tower lets you crank the rotor into the wind from its side-facing position. That way, if the cable breaks, the windplant's rotor automatically turns out of the wind.

Mh: I've always liked that feature in the Jacobs. The Wincharger design did it the other way. You'd crank the rotor out of the wind. Unfortunately, if the cable broke while you were trying to shut it down, the windplant's rotor would be left in the operating position.

The scariest governing mechanism I've seen was the one used on earlier and smaller Winchargers: the air-brake. It consisted of two arced sheets of metal on an arm which rotated in front of the propeller. At a specific rpm, they would begin to change their pitch, plowing through the air and slowing the entire rotor assembly. Using the airbrake would be like pushing down on the brake in your car without having removed your other foot from the accelerator. It was noisy, too. Worse, it would repeat a cycle of slow and quiet, speed up and govern. We adopted the practice of shutting

down this windplant in high winds. We got more sleep at night.

Mick: Some windplant designs today have no manual shutdown mode, relying on electronic loading or passive governing, which relies on blade stall or a centrifugal-induced flattening of the blade pitch. This bothers me. Electronics can break down. Passive governing may prevent



(Above) A remanufactured Jacobs is installed during an MREA workshop.

(Left) A Jake clone is coaxied onto a tower stub in an SEI workshop.

(All photos by Mick Sagrillo unless otherwise noted.)

overspeed but it doesn't stop the rotor from spinning fast. Whatever method or combination of methods of governing are used, it must be fail-safe.

Mh: Will you explain why windplants have different numbers of blades on them?

Mick: Two-blade rotors are subjected to gyroscopic forces when they hunt the wind or run in turbulence. When the blades are vertical (straight up and down), there is no resistance to the windplant's rotation about the tower. When the blades are horizontal, one blade pushes into the wind while the other moves downwind. Combined with the forces imposed by gyroscopic action, in rotation each blade actually flexes in response—null, upwind, null, downwind—for each revolution. Now go to a thousand times one revolution (1,000 rpm). It makes a noticeable chatter as the windplant yaws.

Gyroscopic vibration wears bearings and parts quickly, and loosens bolts. It's the primary reason that many windplants have three blades. Three-blade geometry, as with four-blade and five-blade rotors, bal-

ances out the forces and effectively neutralizes the gyroscopic vibration endemic to two-blade machines.

Mh: I've made my share of mistakes in working with wind energy systems. What was an early mistake you made in this work?

Mick: I learned not to believe everything I read. In your book, *The Homebuilt Wind Generated Electricity Handbook*, you suggested using a cable sling and pulley as one means of tilting up tall towers. I tried it on a 100-foot tower I was installing in our pasture. There was too much friction for the pulley to easily slip along the sling. When we got the tower to about a 45° angle, the pulley slipped on the sling and the resulting jerk caused the tower to buckle and fail.

Mh: You reminded me that you asked me about this years ago. Actually, I *did* try the pulley-and-sling technique after I wrote the book and it didn't work but I attributed this to the rigging I used rather than the technique itself. Whoops.

Mick: Nobody got hurt. We repaired the damage, tilted up 70 feet of the tower, and used a crane to

mount the last 30-foot section of tower, followed by the windplant. This incident actually got me thinking more about tilt-up towers. When you rig a tower to be raised, it's also rigged to be lowered. In our solution, the gin pole became part of the installation. And we used pulleys to gain mechanical advantage and lower the tension in the raising cable. The tower can be raised or lowered using a truck or tractor, or even a winch.

Mh: I first saw this type of rigging up at the *Home Power* offices back in

1996. A nosecone flew off a Whisper windplant owned by Richard and Karen Perez. Their 64-foot pole tower was lowered in a matter of minutes. On went the new nosecone and, just as easily, the windplant and tower were raised back up. No big deal. A nice setup. I personally like climbing towers—it gives a new perspective on things—but I've been unable to coax some people up even a small tower. Asking them to actually work at the top of the tower is out of the question.

Mick: People are surprised that it takes 3-4 days to rig and raise a tower, and only a few hours to install the windplant itself. Actually, it was Richard Perez who encouraged me to design a tilt-up kit for towers so that people could raise and lower their own towers. After some design and development, my company released several hardware kits for pipe towers

for different heights (up to 126 feet) and rotor diameters (up to 14 feet).

Mh: I have to admit that pipe towers are economical. I didn't use them at all initially. They're difficult or dangerous to climb. With a raise/lower rigging, this is not an issue. You lower the tower, service the windplant, and put it back up. I used to tell people that windplants were an order of magnitude more complex than solar panels. Tower raising is big stuff to most people. I know. I was enlisted to raise a bunch of them. I like the element of safety the raise/lower rigging provides. It makes wind energy more accessible. Also, the tower is most vulnerable during a lowering, particularly when it gets near the ground and the cable tension is highest. So, it's nice to know that everything is rigged exactly as it was when it was *first* tested as a system—when the tower was raised. What size of pipe are the kits based on?

Mick: Two sizes. One is tubing, which is like big EMT (electrical metallic tubing) used in the electrical trade. It's 11-gauge, so it's got a thick



wall. For large windplants or taller towers, I use 5-inch schedule 40 pipe, which is well casing. We encourage the customer to buy either type of pipe locally to save on shipping costs. The kits vary from basic to complete. Most include the pipe couplers, guy wires, attachments, turnbuckles, pulleys, and other rigging.

Mh: I understand that you've sold *Lake Michigan Wind & Sun*?

Mick: Yes. John Hippensteel is a mechanical engineer who joined the company about a year before I sold it to him in March of '97. I'm not good at managing a company and keeping everybody busy. He still manufactures and sells the tilt-up towers and kits.

Mh: What's the tallest tower you've raised? And what rule of thumb do you use for siting the guy anchors away from the tower?

Mick: A 126-foot tower is the tallest I've raised. For the towers I designed, I use the 40% rule for anchor siting. Other towers may use a different guy radius. The guy anchors are positioned away from the tower a distance equal to 40% of the tower height. For example, that's 40 feet for a 100-foot tower and 20 feet for a 50-foot tower. There are four anchors, positioned equally about a circle.

During raising or lowering the tower, there are two side guy wires, the raise cable, and the cable that opposes it. Most of the hardware that is used to raise the tower is also used to hold it safely vertical.

Mh: In your experience, what element of weather—thunderstorm, lightning, icing, or imbalance—is the biggest threat to a windplant?

Mick: Thunderstorms can be quite violent. I recommend shutting the windplant down during a big storm or high winds. Sure, there's energy there but it's so rough on the windplant, particularly the lightweight machines. I belong to the heavy metal club. I like a windplant with some weight to it. They seem to fare better in storms over the years.

The effect of lightning on a wind system is largely mitigated by grounding the tower and using lightning arrestors at various points. Actually, there's more of a lightning problem with wind systems that are line-tied to the grid. Power poles and wires take a lot more hits than a single tower, and a surge can backtrack and hurt the power equipment.

Blade icing generally occurs when the wind dies. Icing spoils the rotor's airfoil, so the windplant simply won't start until the ice melts and drops off.

Mh: One protection I like to see in a wind-electric system is a way to detect any unusual vibration. What if a piece of the blade or a bolt flies off? Unattended, a small imbalance can shake the windplant and tower until something else breaks. I've bolted a vibration sensor to a tower to sound an alarm. In one setup, I rigged a circuit to operate the winch and shut down the windplant if strong vibration was detected.

I don't want to put you on the spot but I'd like your opinion. What's the best windmachine available today for producing electricity?

Mick: I've repaired wind equipment from over 75 manufacturers over the years. What I've chosen to work with is the old Jacobs. It's a heavy-duty beast, plus it's got a good rotor size and generates its power at low wind-speeds. Bergey is another good design with a reputation for high reliability. The small Whispers are great. Frankly, I'd like to see more imported

(Left and below) A 10kW Bergey is raised on a 120-foot tower which is rigged to safely lower it, too. (L to R) David Nixon, Steve Bell, Bob Peterson, and Mick Sagrillo pause before raising tower and windplant.



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dandsun.com Manufactures tilt-up towers
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used windplants.

windplants. There are some solid
designs emerging from other coun-
tries. I think they just need dealers in
the U.S.

Mh: What do you think of grid
interties? And how do you integrate a
windplant with solar-electric modules
and a standby generator?

Mick: It's senseless to install a
large-wattage machine and use a grid
connection that's not net-metered.
Net-metering means you are paid per

generated watt by the utility at the
same rate you buy it. Where net
metering isn't available, this buyback
idea is less attractive.

For off-grid systems, I favor the
hybrid solar/wind system. I start with
the load. What do you want to power?
An honest appraisal here helps to size
the battery bank. Then, I add in the
wind and the solar. And some kind of
load diversion, i.e., heating of some
sort, to handle surplus electricity.

Mh: Now that you've sold your
company, what are you doing? And
what are your future plans?

Mick: I teach workshops, for both
the MREA and SEI (*Solar Energy*

International) in Carbondale,
Colorado. I occasionally do a work-
shop for other renewable energy orga-
nizations and consulting firms. I'm
even doing some workshops overseas.
I like teaching 15-20 people at a time,
where the focus of the workshop is a
wind generator and tower installation.
The students turn around and multiply
this effort. I like the technology trans-
fer and how it empowers people to do
it for themselves, or make a career of
it.

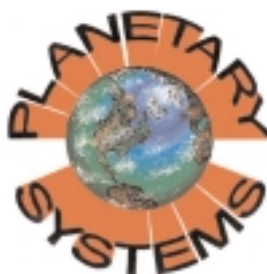
(Mick Sagrillo, E3971 Bluebird Rd.,
Forestville, WI 54213. **Phone:** (920) 837-7523.
e-mail: msagrillo@itol.com
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By Michael Hackleman and Craig Worthley



FINDING AND

The windmachine hung precariously at the top of a tower. It was skewed on its mount, its tail tilted downward at a 30° angle. Minus its two blades and governor, it was an odd sight. The elderly woman in the farmhouse said the people from the REA (Rural Electrification Administration) would not hook up utility power unless the windplant was taken down. Too poor to hire someone to remove it, her husband had attempted what many of their neighbors in 1940 had already succeeded in doing—unbolting their windplants and letting them fall—to qualify for grid connection. For us, this solved the mystery of the fully assembled windplants we'd found in previous weeks, half buried in the ground or crumpled against the concrete base of a tower.



(Above) Two expeditions rendered parts to restore seven windplants.

(Right) Windy Dankoff checks out a restored Wincharger before it is bolted to a tower and raised.

(Left) A damaged Wincharger sits atop a tower in Wyoming. In a stiff wind, Michael Hackleman hoists it clear (inset) and lowers it. This is the machine Craig Worthley would restore.



By Michael Hackleman

But something had gone wrong. The windplant should have toppled cleanly away. Instead, it twisted and jammed. Her husband was afraid to climb the tower again. The woman from the REA reassured the couple that their actions met the intent of the REA policy. Subsequently, their farm was hooked up to the new utility service.

A rescued Wincharger

In 1974 and 1975, I conducted a series of expeditions to recover wind-electric machines of the pre-REA period from the midwest USA.

Respectively the Rolls Royce and the Chevy of wind-electric machines, we found a few Jacobs and a multitude of Winchargers. Fortunately, most of these had been taken down and were stored in barns, cellars, and garages where it was easy to assess their good condition. Other equipment was not so fortunate. Machines lay out in fields or in pieces, buried in piles of junk. A few windplants were still on their towers. Some earned their keep, bladeless, acting as a windvane for the owner. Others were simply too expensive or dangerous to lower.

Forty years after it went into service, I sweated the damaged

RESTORING A 1930s WINCHARGER

Steps and hardware of the Wincharger restoration



1. A larger (1500-watt) Wincharger awaits its turn at restoration.
2. Adaptor plate and shaft extension for the alternator
3. The gear is mounted to the alternator.
4. The alternator is bolted to the gearcase frame assembly.
5. The gearcase is testfitted to a tower stub.
6. A fabricated propeller hub
7. Sliprings and brush assembly are mounted in a weathertight box.
8. Glenn Hackleman test-fits the blades. (A broom becomes a temporary tail.)
9. Craig Worthley and rebuilt Wincharger



Wincharger off the tower. Don't let the size fool you. It's heavy! The windplant is mostly cast iron, with some steel and copper. I came prepared on the expedition with a gin pole. (A gin pole is bolted to the tower stub and acts like a small crane to lift a windplant on or off the tower.) I had experience with raising machines to the tops of the towers, but never the reverse. I took lots of time rigging it. Fortunately, it came off smoothly even in high winds.

What's a Wincharger?

Let me describe the Wincharger design. First, it's a brand name, hence the missing "d" so that it is not confused with the generic term, windchargers, which describe a class of windplants that generate electricity. Second, Winchargers are rated 32 Volts dc (the standard of the day, even in the cities) and 800-1500 watts of output capacity. (There are exceptions such as the popular 12V, 200W Wincharger sold also as Zenith or Silvertone brands.)

Winchargers were built for the working person. While the Jacobs windplant had a generator which was best handled by an engine hoist, the Wincharger could be disassembled into recognizable parts: generator, a gearbox to translate a few hundred propeller rpm into the thousand-plus rpm needed by the generator, tail boom and tail, slings, a turntable, a furling mechanism to shut down the windplant, and a cast iron frame assembly to which all the components were attached.

Rated alongside the Jacobs, the Wincharger doesn't score as high on material use, engineering, and workmanship. It cost less to make and it sold for a lot less than a Jacobs windplant. Still, it is decisively more rugged than some designs and brands of windplants manufactured in the world, even today. As well, there were *many* other brands of windplants in the '30s, '40s, and '50s that

produced electricity. Today their names are forgotten, so the Wincharger was the best bang for the buck if you didn't have a lot of bucks.

However, in 1975, after I'd pulled the Wincharger from the tower, its small size and poor condition put it at the end of the list of machines we would restore. Actually, it was more likely to be cannibalized for its parts or sold off "as is" to help defray expedition costs. My records show that its gearcase was rebuilt along with all the others we had restored. This means that its prop shaft had been checked for true. (We found many Winchargers concentrically out-of-round between bearing and propeller hub surfaces—a manufacturing error—and had new ones made.) New bearings were also installed. The gear's teeth checked good. The outer surface was beadblasted to the metal and given a coat of primer. After that, the windplant was put in storage when I left the farm in 1985.

The resurrection

In November of 1995, Meline "Mo" McHolland at Humboldt State University (HSU) in Arcata, California, introduced me to Craig Worthley, also a student at HSU. Craig was looking for a senior project and believed that restoring this windplant might qualify with his teacher. It did and the project commenced. I gave Craig a copy of my book, The Home-Built Wind Generated Electricity Handbook. It had chapters on finding and restoring Winchargers from my work 20 years before.

The next task involved getting Craig, myself, and a truck to storage up in the Sierras to get windplant parts and related hardware. Craig had a tough time recognizing the windplant for all the pieces it was in. However, Windy Dankoff and I had restored half a dozen of these machines in 1975, so I was able to identify and pull out all the necessary parts—if they still existed. I loaned a

tower stub, a prop hub, a slip ring assembly, and several extra vital parts to Craig to assist him in duplicating these components.

Homecoming

After that, I just waited. The school year ended, and Craig called, wanting to bring the remanufactured pieces by. We met at my nearby storage unit to look over and actually assemble the Wincharger, photo-documenting the pieces and stages of this procedure as we went along.

I don't know what grade Craig's professor gave him for his work, but I'd give him an A+. There were some severe challenges in this restoration—the parts had remained parts for a reason—and Craig met them with tenacity and skill. More specifically:

1. Substituting an alternator for the original 32V generator. By paralleling some of the field coils, a 32V windplant will power a 12V system "as is" but its maximum current rating (about 35 amps) must not be exceeded. Connected to a 12V system, then, the generator is limited to 420 watts (12V x 35A).

Automotive alternators have 12V field coils and need only a limiting resistor (or some similar voltage regulator circuit) if interfaced with 24V, 32V, 36V, or 48V systems. A 100A alternator affixed to the Wincharger in a 12V system can safely produce 1,200 watts (12V x 100A).

2. Adapting the alternator to interface with the gearbox. The design and fabrication of the adaptor plate met every specification. The shaft extension for the alternator was cleverly executed. We had dismissed the idea of substituting alternators for missing or burned-out generators on Winchargers previously because their shafts were too short. Having the alternator rewound was also a smart move. This means higher power at lower voltages or windspeeds.

3. The design and fabrication of the slings, lollyshaft,

and related hardware. There is a lot happening at the junction of any windplant and tower. The tower must support the windplant and allow it to rotate. The generated electricity must pass from rotating machinery to stationary wires on the tower. The cable from the furling mechanism must pass through to the base of the tower. And

the whole assembly, in this case, must be built for any type of tower. Craig fabricated basically a universal adaptor.

I am happy to see this machine progress slowly toward the day it will again fly. This Wincharger stands as testament to a time when people wanted power and found that taking it

from the wind was a natural thing to do. It makes just as much sense today as it did more than a half century ago.

(Photos for this article were taken, in part, from *The Homebuilt, Wind-Generated Electricity Handbook* by Michael Hackleman. For a current publications list, send an SASE to P.O. Box 327, Willits, CA 95490. E-mail: mhackleman@saber.net.)Δ

THE RESTORATION

By Craig Worthley

In November of 1995, I was approached by Meline McHolland and Michael Hackleman. The three of us discussed a project—restoring a vintage 1930's Wincharger. As a senior in the Industrial Technology program at Humboldt State University (HSU), I welcomed this opportunity to fulfill the requirements of a senior project. I felt it would allow for me to utilize my skills in management, manufacturing, design, Autocad, and CNC programming.

After communication with the faculty at HSU, the project was accepted as a viable undertaking and met requirements for completing the program.

Picking up the pieces

On a Saturday morning in April of 1996, the project got underway. Michael and I were able to coordinate our schedules to actually make the 350-mile trip to the Sierra foothill town of Mariposa, California where the machine was stored.

We opened the door to the storage unit. The image of a complete machine in need of a little paint and new windings was shattered. Yes, there was a Wincharger in there but it was scattered and distributed among many boxes containing smaller cups which held the nuts and bolts of this assembly or that. We loaded all the

parts that were available toward restoring a Wincharger and headed back. By Monday morning, it was one big pile on a table in the University's Jenkins Hall.

The strategy

I began the restoration of the machine by dividing it into its major sub-assembly groups. These assemblies are: governor, generator, gearcase, furling assembly, lolly shaft and slipring assembly, and the tail assembly.

Governor

The purpose of the governor is to limit the maximum rpm of the machine. To have a 10-foot diameter propeller spinning uncontrollably high above the ground is not a safe condition. Through the use of weights, springs and gears, the governor changes the pitch of the blades, decreasing the area for the wind to act upon while resisting the free spinning of the propeller. Maximum speed of the blades is determined by the selection of different centrifugal weights and springs.

To put the governor back in working order, I first had to sand blast the years of grimy build-up off the aluminum casting. This unveiled the body of the unit that accommodates the weights, springs, blade paddles, torsion gears and thrust bearings. Cleaning

up the rest of the assembly was mostly a matter of patience.

The paddle shafts were found to be true and in good condition. I merely had to re-thread the ends that accept the castle nuts.

The steel linkage bars that connect the weights to the torsion gears and from the gears to the springs have 3/8-inch holes at both ends for bolts. All of these holes were oveled out after long years of use. To correct this condition, I machined some steel bar stock into bushings. These were drilled out and pressed into the holes I had enlarged in the linkages.

The governor assembly was designed to accommodate four timphen roller bearings, two on each of two shafts where they enter and exit the casting. Removal of the old races from the casting was the most challenging part of the replacement process. All the necessary nuts and bolts were purchased—as were roll pins and grease fittings—to complete the governor assembly.



Generator/alternator

The windplant's original generator was built to produce 32V, while most wind systems are designed around 12V. The choices were to rewind the original generator or replace it with a 12V generator or alternator.

I felt that the most economical alternative was to replace the 32V generator with an alternator that I found at a local shop. With the help of the shop owner, we determined that an alternator from a Detroit diesel was designed to produce electricity at 2000 rpm. This was close to what I was anticipating the machine would produce with a 6:1 gear ratio and a propeller spinning at 300 rpm. In addition, the power curve of an alternator is inversely exponential, while in a generator, it's linear. This should result in better voltage output from the windplant at low rpm.

I disassembled the old alternator to be upsized to 100A. The same shop that gave me the old alternator fit it with new field windings and a voltage regulator as well as new bearings. It

was tested on the bench and produced 105 amps.

To fit the alternator to the cast iron body of the machine, I designed a triangular flange (Figs. 2, 3, 4, 5, pg. 42) that would adapt the bolt pattern of the original generator to this alternator. This was fabricated out of ½-inch plate steel using CNC programming and a Bridgeport Vertical mill. I was able to accurately machine the bolt patterns for both the alternator and the cast iron gearcase.

The flange was designed to provide for good airflow into the alternator. The cast-iron frame assembly was spot-faced to accommodate the round mating surface of the original generator. I refaced the casting on a surface grinder to accept the square bottom edge of the flange.

The alternator's shaft was considerably shorter than the original generator shaft. I came up with an extension to ensure proper alignment of the pinion and drive gears. To accomplish this, I machined a piece of steel bar stock on a lathe to an inside thread on one end to

(Below) Parts for the alternator shaft extension



mate with the alternator shaft. On the other end, I machined an outside thread to accommodate the bolt that holds the gear in place. This part was 3½ inches long. I broached the keyway into the machined shaft and slowly removed material from the female end until the overall length made for perfect alignment of the gears.

Gearcase

The gear case is comprised of a cast iron case, propeller shaft and bearings, drive gear and pinion gear. The case is split vertically from the frame assembly and sealed with a thin gasket to prevent leakage of the oil bath.

The overhaul of the gearcase primarily involved bearing replacement in the nosecone section. The original ball bearings were an open style, lubricated by oil splashed about inside the casing. Bearing technology has come a long way in the last 50 years. It is my opinion that a sealed precision bearing would remain free from contaminants contained in the oil and, therefore, last longer. A very light oil is still needed in the gearcase to lubricate the gears.

I found it odd that the manufacturers had opted to use a straight roller bearing for this application. After all, the propeller shaft is subjected to considerable thrust. I explored the options for replacement bearings. I actually found a high-end roller bearing that was rated to accept well over twice the anticipated 1000-pound thrust of the blade and governor.

After pressing the new bearings onto the shaft and, in turn, the shaft into the casting, the woodruff keys were replaced and the drive gear mounted. The gear case was now functional.



(Above) At rated speed, the governor's weights arc outward, pulling the gears and prop shafts into rotation, preventing rotor overspeed.

(Left) Refurbished and new parts for the governor await re-assembly.

Propeller hub

The next big component to manufacture was the propeller hub. The hub was manufactured in two pieces, and these were joined to make one component (Fig. 6)

The first piece was a 1½-inch cylinder that was bored out and broached to accept the key to mate with the outboard end of the propeller shaft (front of gearcase). This part served the dual purpose of spacing the rest of the hub from the gear case and distributing the load along a greater area of the shaft.

The second piece was a ½-inch plate that was CNC-machined to create an 8-inch disk. When the machining process was finished, it was penetrated in the center to accept the first part and it had a 4-hole bolt pattern to match the governor toward the outside of the disk. The center piece was introduced into the hub and welded in place. Trueness of the joined parts was ensured by mounting it on a mandrel and facing the surfaces on a lathe. When exact perpendicularity of the disk and shaft penetration was achieved, four ⅝-inch stainless bolts were introduced to the bolt pattern and welded into place with stainless welding rod.

Slipring assembly

The most time-consuming and challenging sub-assembly proved to be the lolly shaft & slipring assembly. The lolly shaft serves to support the machine and allow for 360° rotation of the windplant to face any wind. The difficult part is to transfer the generated power from the rotating unit to the stationary tower where it is connected to the batteries through wires. The sliprings do this job through rotating brushes and stationary rings.

I was able to salvage a set of rings from the collection of spare parts. I found a complete set of brand new brushes, too. In order to support and insulate the sliprings, I manufactured four circular mounts that sandwich

the brass rings and fit firmly onto the lolly shaft. The mounts were machined of phenolic resin on a lathe which turned the shoulders and bore the hole to accept the lolly shaft. The pieces were then mounted in an indexing head which was set up on a knee-and-column mill. This allowed me to rotate the work while engaged with the tool.

I carved arched slots between the interior bore and the outside of the mount. These slots allow for the conductors to be soldered to the inside of the rings and pass through other mounts on their way down the tower. The conductors were sized by referencing the Uniform Building Code. Based on a 100-amp service, the recommended wire was size #6, 600-volt, multi-strand, copper conductor.

The lolly shaft, which is secured to the tower, does not rotate and neither do the sliprings. Inside of the lolly shaft is another shaft that rotates. This shaft extends past the top of the outer shaft and is bolted to the wind windplant itself. To secure the machine to this shaft, I milled a 4-inch long flat area on the shaft. When inserted into the machine, the flat area is aligned with two holes in the casting along the vertical axis of the shaft. Through these holes I slipped in two ½-inch stainless bolts which I also machined flat on one side.

The weight of the machine rests on a Timpken bearing housed in a bell-shaped casting which is supported on the underside by the lolly shaft. The whole assembly was slipped into a rain-tight sheet metal box which protects the sliprings from the elements (Figs. 5, 7). On the inside of the box, which rotates with the machine, I mounted the brushes. This design results in a water-tight environment for the electrical transfer device. When the door to the box is opened, the brushes are disconnected from the rings for safe servicing.

Furling assembly

The furling assembly allows an operator to mechanically rotate the tail from its position perpendicular to the propeller (operating mode) to a position parallel to it (shutdown mode) from the base of the tower. When the machine is in the furled position, the blades come to a stop because they are then in a plane parallel to the movement of air. This allows for safe servicing of the machine or temporary shut-down in the event of malfunction.

[Note: The furling system consists of two subassemblies. At the base of the tower is typically a crank and drum of cable equipped to ratchet in either direction, to furl or unfurl the windplant. At the top of the tower and attached to windplant is the furling assembly. The tail (fin and boom) is attached to the top of a casting with two galvanized U-bolts. This casting is hinged to the windplant's framework and is held by a heavy duty spring in the operating mode. On one side of the furling body is an arm with a pulley. It is bolted to the framework and aligns with the hole in the top of the lollyshaft. A wire attached to the tail boom passes over the pulley in the arm, over another pulley bolted directly above the lollyshaft, and down to a swivel joint. —mh]

Restoration of the furling system consisted primarily of disassembly, sand blasting, painting and replacing rusted hardware.

Tail assembly

The tail assembly is also a simple one. It consists of the tail casting, a spring that encircles the tail casting pivot in the frame assembly, a boom (pipe) and the tail (fin). The tail casting and spring were cleaned, sand-blasted, and painted. The new boom will be a 6-foot piece of 1¼-inch steel pipe that bolts to the tail casting. The tail will be sheet plastic bolted to the boom. Δ



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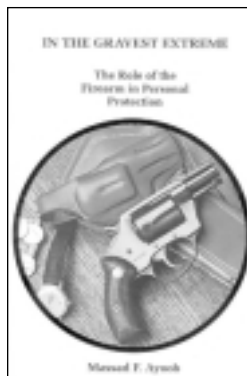
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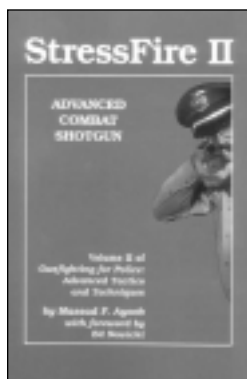
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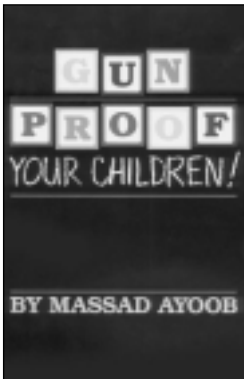
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Ayoob on Firearms:

The armed private business

Your independent lifestyle may include running your own business. Until that business gets bigger, that makes you head of security for the company.

You read *Backwoods Home* because you're independent, or because you want to be. Demographics indicate that readers of this publication are highly likely to either work for themselves now, or to be planning to do so in the future. When you own your own business, you're responsible for the safety of every employee, including yourself. *Backwoods Home* readers like the idea of "family businesses" in which they employ their relatives. Duffy does it with the magazine itself. Check the masthead.

Think about it. This is serious. The supervisor is to the subordinate as the parent is to the child. That's true in any business, or at least, it should be. When the subordinate actually is your child, the price of poker just went up: your responsibility to keep your staff safe from workplace violence goes beyond being a duty and becomes something you could call a covenant. The parent is the protector of the child, and in a proper order of things, the employer should be the protector of the employee.

And never, ever forget, "the host is responsible for the safety of the guest." You, the owner of the business, are the host. The customer is, in every legal and moral sense of the word, your guest. Is there a responsibility that evolves here? Believe it, because it's true.

This column is about guns, and about the use of deadly force to guarantee the safety of the innocent

against the violent aggression of the lawless. Dave Duffy wants me to talk in this issue about self-defense guns for independent people who have their own businesses.

I can do that.

My grandfather came to this country from Damascus in the mid-1890s. He established a chain of small businesses. The day came when, many years later, he was robbed at gunpoint and pistol-whipped by his attacker. My grandfather was able to get to the then-high-tech Colt .32 automatic he kept under the counter, and he shot it out with his antagonist. The robber missed, Gramps did not, and the gunman staggered out of the door with a .32 wound in his shoulder. Later that night, he tried to kill an arresting police officer, and with Darwinian selection being what it is, apparently realized too late that it is unwise to start a gunfight when you have a gunshot wound in the shoulder of your gun arm. The cop survived unscathed, my grandfather recovered from his injuries, and the man he shot began his eternal dirt nap that night.

Using deadly force

My father was in his 20s when he had to fight back or die as the intended victim of an armed robbery/murder attempt. Dad didn't emerge unmarked either. A .38 was held to his head and the trigger pulled. My father jerked his head aside in time to survive: the bullet missed, but the muzzle blast blew out his left eardrum and rendered him stone deaf on that side for life. In a moment, my father was returning fire: the man who maimed him died that night with a .38 slug just under his heart, and that man's accomplice was



Massad Ayoob

so horribly maimed by my father's second shot that he committed suicide a year or so later in despair.

My grandfather had died at a "ripe old age" when I was born to his son, a man who taught me the gun and the knife when I was a little kid. The legacy of the family's having to kill in self defense has ended, so far, with my generation. I haven't had to shoot anybody yet. I was in my mid-teens when I first had a Colt trained on a person who "fit the profile" of being about to rob my dad's jewelry store. He never saw the gun pointed at him. He just seemed to sense something was wrong, and he stopped giving out red alert danger signals, and he left. No blood was shed.

(No, it wasn't a "racial profiling thing." The suspect was Caucasian. It was a "white guy with his hand in the jacket pocket obviously holding a clearly printing snubnose revolver" kind of "profiling thing.")

I was 21 before I had to draw a gun on a man in public for the first time. Some of my subsequent incidents came on duty as a police officer, and in some, like the first, I was an ordinary armed citizen. Each time, I was glad my gun was there to intimidate things that threatened innocent, decent

people. My family is now in its fourth generation of using the gun to ward off life-threatening criminal violence; my oldest daughter's swiftly-drawn S&W 9mm put two attacking males to flight.

I've spent most of this column establishing the bona fides. The rest of it will go real quick. When can you use the lethal force of a gun in self-protection? I've spent several months worth of columns in this magazine laying that out, and you can get it from back issues or from the on-line version of this magazine. I'll take the liberty of asking publisher Dave Duffy to plug in a sidebar with this article that shows you how to access that information.

Short form advice from a lifetime of more than half a century, including 26 years as a sworn police officer? Plan A is, Keep the gun on your person. This simultaneously keeps it out of the way of customers and their kids, unauthorized employees and their kids, and bad guys, while always being readily accessible to you.

There is a tendency even among off-duty cops to only carry the gun when you think you'll need it. Don't kid yourself. Violent attackers will pounce on you in exactly those moments when you didn't think you'd need it, and therefore didn't have it. I learned the hard way that always carrying a gun was like always fastening a seat-belt: an inconvenience you could get used to in return for being protected if things went bad.

What was the "hard way?" A car crash where I wasn't wearing the seat belt. The air bag did not deploy, but fortunately, a Second Chance Monarch ballistic vest had been "buckled up" by the driver, yours truly. The airbag did not deploy. The vest did. I was Second Chance Save #682 and Kevlar Survivors' Club member #1946. The doctor told me later that without the vest, I probably would have died at the scene of "flail chest" after the hub of the steering wheel made contact with my chest.

Wearing the ballistic vest was like carrying the gun. If you don't expect trouble, you won't put it on...but if you are always prepared "just in case," that preparation can save your life on a day when you didn't expect to face Death.

More on your rights and responsibilities with guns

Massad Ayoob has written many articles for *BHM* on your rights and responsibilities when you want to make guns a part of your self-reliant lifestyle. You can read these articles in back issues of *Backwoods Home Magazine*, in our printed anthologies, and on our CD-ROM, all of which can be ordered using the order form at the end of this issue. Or you can go directly to those columns by accessing our Web site at:

www.backwoodshome.com
and pressing the Massad Ayoob icon.

Don't leave loaded guns laying around where they can be accessed by unauthorized hands. My business involves firearms training, which means that guns are as accessible there as at a gun shop. My business also involves ammunition sales. The guns will be in one place, the ammunition in another, and even with buyers in the retail environment, it will be virtually impossible for a customer to put gun and cartridge together without being noticed in time for the act to be interdicted.

Some of my employees aren't "gun people" and haven't been trained. Some are fully trained and armed under my authority as their employer. They'll either have a loaded gun on their person, discreetly concealed, or will know the combination to the gun-lock box where a loaded handgun is stored near their workstation.

My people won't carry a visible gun. This in my opinion could trigger a grab for their weapon by a psycho customer, and on sight would tell an

armed robber, "This employee is armed so you must shoot him or her at the opening of the encounter." Call me arrogant, but I'm the only full-time employee in that workplace who generally has a gun that can ever be seen. I teach gun retention, the corollary science of the disarm, and the staff knows I'm a cop anyway. It doesn't bother them that there is a .45 holstered at my hip when I'm in the office with my jacket off, and frankly, even the UPS men and the office equipment repairmen got used to it a long time ago.

It's simple, really. When I'm working for the police department I serve, the people I left behind at the office of "my other business" need to have something more than a kind word with which to protect themselves. When I'm in that office and not on police duty, I have an obligation to keep everyone who works for me as safe as is possible.

Supervisor of the workplace? Cop? I wear both hats. Either way, I'm responsible for the protection of the lives of the innocent. The cops I work with are all armed for a very good reason. The private-sector employees who work for me in a different community have armed protection, also for a very good reason. In each scenario, it's about competent people being capable of using force—ultimate force if necessary—to lawfully protect the innocent from the evil.

In the end, if you think about it, it is that simple. Δ

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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a continuing feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

An older man was married to a younger woman. After several years of a very happy marriage, he had a heart attack. The doctor advised him that to prolong his life they should cut out sex. He and his wife discussed the matter and decided that he should sleep in the family room downstairs to save them both from temptation.

One night, after several weeks, he decided that life without sex wasn't worth living. So he headed upstairs. He met his wife on the staircase and said, "I was coming up to die."

She laughed and replied, "I was coming down to kill you!"

Sherlock Holmes and Dr. Watson go on a camping trip. They set up their tent, and are soon fast asleep. Some hours later, Holmes wakes his faithful friend. "Watson, look up at the sky and tell me what you see."

Watson replies, "I see millions of stars."

"What does that tell you?"

Watson ponders for a minute. "Astronomically speaking, it tells me that there are millions of galaxies and potentially billions of planets. Astrologically, it tells me that Saturn is in Leo. Timewise, it appears to be approximately a quarter past three. Theologically, it's evident the Lord is all powerful and we are small and insignificant. Meteorologically, it seems we will have a beautiful day tomorrow. What does it tell you?"

Holmes pauses for a moment, shaking his head, then says, "Watson, you idiot, someone has stolen our tent."

Three weeks after her wedding day, Joanna called her minister. "Reverend," she wailed, "John and I had a dreadful fight."

"Calm down, my child," said the minister, "it's not half as bad as you think. Every marriage has to have its first fight."

"I know, I know," said Joanna. "But what am I going to do with the body?"

How the government works: Once upon a time the government had a vast scrap yard in the middle of a desert. Congress said someone may steal from it at night, so they created a night watchman, GS-4 position, and hired a person for the job.

Then Congress said, "How does the watchman do his job without instruction?" So they created a planning position and hired two (2) people, one person to write the instructions, GS-12, and one person to do time studies, GS-11.

Then Congress said, "How will we know the night watchman is doing the tasks correctly?" So they created a Quality Control position and hired two (2) people, one GS-9 to do the studies and one GS-11 to write the reports.

Then Congress said, "How are these people going to get paid?" So they created the following positions, a time keeper, GS-09, and a payroll officer, GS-11, and hired two (2) people.

Then Congress said, "Who will be accountable for all of these people?" So they created an administrative position and hired three (3) people, an Administrative Officer GS-13, Assistant Administrative Officer GS-13, and a Legal Secretary GS-08.

Then Congress said, "We have had this command in operation for one year and we are \$18,000 over budget, we must cutback overall cost. So they did the obvious and most prudent thing—they laid off the night watchman."

It's wise to remember how easily email, this wonderful technology, can be misused, sometimes unintentionally, with serious consequences. Consider the case of the Illinois man who left the snow-filled streets of Chicago for a vacation in Florida. His wife was on a business trip and was planning to meet him there the next day. When he reached his hotel, he decided to send his wife a quick email. Unfortunately, when typing her address, he missed one letter, and his note was directed instead to an elderly preacher's wife whose husband had passed away only the day before.

When the grieving widow checked her email, she took one look at the monitor, let out a piercing scream, and fell to the floor in a dead faint. At the sound, her family rushed into the room and saw this note on the screen: Dearest Wife, Just got checked in. Everything prepared for your arrival tomorrow. P.S. Sure is hot down here.

An easy-to-make pot rack

By Clay Sawyer

Need an extra place to put those pots and pans? Build a pot rack from your scrap wood and hardware or invest a few dollars at the hardware store.

One day while flipping through an expensive cooking supply catalog, a pot rack caught my attention and as I stumbled to match item number with the price I know my jaw dropped to the floor when I read \$249.99. I knew at once I had to figure out how to make it myself, and being the stubborn and practical cuss I am, I eventually did. Because some of the hardware needed to make a rack similar to



Once the oak boards are cut, sanded, stained, and connected with the hinges, the rack is ready to be suspended.

the one in the catalog was unattainable, I improvised using simple hinges. I splurged, if you can call it that, and spent the whole of \$35.00 and built the rack in the total time of about an hour.

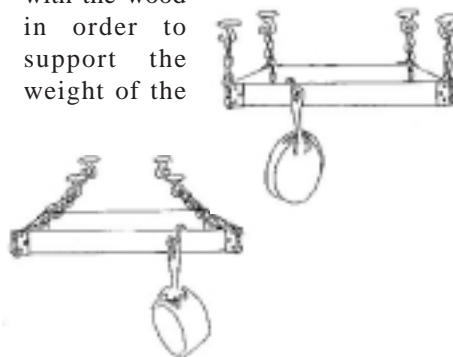
I've enjoyed my pot rack for a little over a year now and it has proven sturdy and useful as well as a decorative addition to my kitchen. This rack would also make a great gift or could even be a prospect to consider if you frequent the Fairs as a Crafter.

The materials you need are:

- 4 large ceiling hooks (without the toggle wings)
- 4 3½-inch hinges with screws
- 10 S-hooks
- 4 lengths of chain (each approximately 2 feet long)
- 8 feet of 4-inch oak board with a 1-inch thickness
- Stain of your preference

Begin by cutting the oak board into two 33-inch sections and two 12-inch sections. Lightly sand, stain, and set aside to dry. When the boards are dry, form the rack with the boards so that the two 12-inch sections are on the inside of the two 33-inch sections. Once the hinges have been arranged on all four corners, predrill all holes then mount the hinges carefully, making sure the hinge side is out and the pins are all in the upwards position.

Once the rack is firmly attached by the four hinges, mount the four hooks from the ceiling using the finished rack measurement as a guide. If your ceiling rafters are 16 on center and exposed, your hooks should line up with the wood in order to support the weight of the



The rack is suspended by chains that either hang vertically or at an angle.

rack, including pots. Pending the ceiling or exposed beams, the finished rack can be made shorter than the 33 inch length of this example. Or another alternative is to mount the hooks inboard of the rack. The chain lengths



would probably need to be doubled. An exact measurement of the distance would certainly be needed in this case, before cutting any chain.

The lengths of chain you can cut yourself or your hardware store will do it for you. It is of course important only that all four lengths of chain have the same number of links so that the rack hangs level from the ceiling.

Chains are then simply looped around each corner of the pot rack, with both chain ends meeting and secured to each ceiling hook. The S-hooks can then be placed on the rack, one on each short end and four on each of the longer sections. The rack is now ready to take on your collection of pots and pans.

If "rustic" is more to your liking, try using your own scrap wood and hinges on hand. A good ½-inch manila rope could easily substitute for the chain. Flat black spray paint applied to old hardware will ensure everything matches.

Made from new materials or old, this rack will prove handy in your kitchen. Δ

Ask Jackie

Wild meat, intensive gardening, salsa, goats, diabetes, canning with artificial sweeteners, canning with noodles, and “successful” chokecherry jelly

(Jackie Clay invites *BHM* readers to submit questions on any facet of low-tech, self-reliant living. Send questions to *BHM*, P.O. Box 712, Gold Beach, OR 97444. E-mail: jackie@backwoodshome.com)

I really enjoy your column. Being a city boy, I'm really worried about picking up some nasty internal parasites from meat—mostly wild game, but also anything purchased from small homesteaders. How can I check out a roast or a side before using it? I would prefer not to “cook well-done into shoe leather.”

Peter Sedler
psedler@usa.net

There really aren't any guarantees with any meat—or any other food, for that matter—as to what bacteria or parasites lie lurking for the unwary to consume.

But I can tell you that I've hunted and fished for all my life, and have *never* picked up anything from this wild meat, nor have I known anyone who has. I have become sick with food poisoning twice from eating at a popular fast food joint. That tell you anything?

With wild meat use common sense caution; don't kill any animal that looks or acts sick (rough hair coat, thin, etc.). Immediately after killing the animal, remove the internal organs and cool the meat. Most internal parasites contain themselves in the stomach and other “guts” which, if removed soon after killing the animal, are removed, as well. Use plastic gloves if you are really concerned.

Wild rabbits, feral pigs, and bears sometimes carry trichinosis which can be passed on to man. For this reason, one must be especially careful when hunting/butchering/cooking their meat. But, again, with common sense and cooking the meat thoroughly, not shoe-leather well-done but thoroughly cooked, you will not be in danger.

As for small homestead-raised meat, just look about you when you get your next meal fixings. Are the place and the people living there clean? Are the animals well cared for, bright, and healthy? If so, your meat is probably much safer than that bought at supermarkets. I've heard a lot of first-hand horror stories about the way meat is handled in large-scale slaughter houses and packing plants, stuff you *don't* want to hear but enough that I can't enjoy meat I didn't butcher myself.

Again, for safety, cook *all* meat until done. Cool, pink, blood-dripping meat can also contain bacteria or parasites unfriendly to your body. Buying it from the store is *not* safer than using wild or homestead meat.

What should I plant to feed my city family. What's costly here in town are artichokes, celery, salad, so I'd need to plant those. I only buy carrots when they're 33¢ a lb., so I don't grow them. Mind you a fifty-by-fifty yard isn't that big. Can I space the broccoli closer? Like every inch apart or something.

Anita Sands Hernandez
astrology@earthlink.net



Jackie Clay

You can grow a lot on 50 feet by 50 feet. First of all, I'd suggest going to your library or bookstore and picking up a couple of Elliot Coleman's books. These will encourage you as to the value of “square foot gardening” (gardening in very intensive terms). No, you can't plant broccoli every inch apart; the plants are large, needing a foot of space to produce. But you'll be surprised at how many plants you can fit into a space 4 feet by 4 feet, eliminating rows and planting every foot apart, all ways. Sixteen broccoli plants and their productive side shoots will keep you in broccoli all season, leaving lots to dry or freeze for winter.

You'll learn, with each successive garden, little tricks of how to get more food out of the same space. For instance, trellis everything you can *up*, getting more plants squeezed into a small area. You can grow pole beans instead of bush beans, trellis such crops as muskmelon and cucumbers up on string nets instead of wasting space letting the vines crawl on the ground. You can intensively replant spaces as they come vacant, due to a crop becoming “finished”. (You can plant short season green beans after your peas are finished and still get enough to can!)

Never let a space go vacant. Plant a few radishes, turnips or greens if a plant is done, dies or seeds fail to germinate in part of a row. Plant long season plants, such as beefsteak tomatoes where you can place a temporary greenhouse over them to protect against fall frosts....this will keep them going for as much as two month longer.

Consider planting edible landscaping. Instead of a hedge of bayberry (non-edible), how about a hedge of raspberries? Instead of maple trees and elm, how about several semi-dwarf fruit trees? Four semi-dwarf fruit trees will provide a family with all the fresh fruit they want, plus plenty to put up for winter. Instead of a flowering crab tree in a corner of the lawn, how about a decorative grape arbor? Three grape vines can produce a lot of grapes, plus the arbor is a lovely shady retreat in the hot summer months.

Plant in containers where there is no "garden space." Right now, on my front porch, I've got five three foot flower boxes filled with asparagus beans, Native American pole beans, cucumbers, and flowers too. The hummingbirds love the flowers and we like the shade and fresh meals. (I've run strings and light netting from the boxes up to the roof for the plants to climb on.)

Learn to go wild-food foraging. As a child in Detroit (believe it or not), the family would go on weekend outings, and bring back harvests of black walnuts, butternuts, asparagus, and wild berries. You don't have to have a huge garden to get by if you garden creatively. Besides these outings are fun. Pack a picnic and a fishing rod.

Learn to can. I know a lot of folks are afraid to try, but when you master it—and canning is easy to do—you can pick up lots of deals if you keep your eyes open and let it be known that you'd like produce to can. I once picked up a pickup load of perfectly good potatoes, headed for the dump, from a large potato grower, cleaning

out last year's bin, readying for the new crop.

You can't always use a pickup load of potatoes before they go bad, or a bushel of whatever, so canning saves the day. And once you've got it canned, it is cooked and will keep nearly forever. And power outages cause no problems with canned goods as they do with a freezer full of food.

I hope I've given you food for thought (pun intended). One can always be more self-reliant no matter where you live. And you'll soon discover that all your homegrown food tasted so much better than store food that your family will scarcely believe it.

Why did you move from Montana to New Mexico? Did the move benefit your husband's health because he is a diabetic? I too am a diabetic and would like to know the benefits of homegrown and home canned foods.

Rebecca D. Brinkman
brinkman1@bright.net

We moved to New Mexico to help out my parents, who are in their 80s. We all thought that the warmer, drier climate would help Mom's crippling arthritis and Dad's health. When they moved to Michigan, we sold the ranch and moved back up north. (We're Montana lovers at heart and the dry climate and lack of wilderness was depressing to us all.)

But we truly believe that home-steading is dramatically beneficial to diabetics. First off, you'll find that you eat more fruits and vegetables; they are constantly available, and they actually taste good. We have a study done which proves that a diet high in beans—dry beans, especially—significantly lowers blood sugar naturally.

You'll find, too, that by home-steading, the pleasant daily exercise you get will drop that blood sugar. For instance, my husband's blood sugar was about 120 when we left Montana, with no meds. In New Mexico, he ran a general store, which we bought.

There, he got little exercise and much stress. The blood level increased and so did the oral meds. Even on a high dose of the meds, his blood sugar averaged above 200.

When we got settled in back here in Montana, his blood sugar began dropping with no other change in lifestyle. In fact, the doctor cut his oral medication in half. And today, only six months after moving onto our new homestead, his blood sugar is down to between 74 and 110. The food he eats is about the same, largely homegrown and home canned, but there's less stress and more steady exercise.

One added benefit of home-canned foods is you can add just what you want. The American diet today consists of a lot of fat, salt, and sugar (under the hidden names of honey, sucrose, dextrose, etc.). Even potato chips often have sugar as an ingredient. And when I can at home, I never add things I can't pronounce. We feel safer, on all counts, when eating what we raise and can. No chemicals or preservatives to cause toxic cocktails for us. (Bob feels that his diabetes was brought about by regular drenching by Agent Orange during his two years in Vietnam which testing by the military has already proven a diabetes/Agent Orange relationship.) What do the chemicals commercially used today in farm fields have as long-term effects that are either not known or unpublished today?

I love the site, but couldn't find anything about canning with artificial sweetener. After by-pass surgery in November, I am insulin dependent. I love to can and love pickles. Have you ever heard if it is ok to use sweetener? Thanks so much.

Vonnie
rvoppliger@nckcn.com

You can use artificial sweetener in many canning recipes. Most canning books, such as the *Blue Ball Book* (Alltrista Corp., Consumer Affairs, 345 South High Street, Muncie,

Indiana 47305-2326), often available at your local Wal-Mart, list sugar-free canning recipes. They are also available in many recent canning books. Check out your local library, including inter-library loan.

As my husband, Bob is a diabetic, we have switched from his "favorite" Bread and Butter pickles to more dills, which have no sugar. I cheat and add artificial sweetener to an opened jar of mild dills then put them in the fridge. After a couple of days they are quite sweet, taking the edge off his sweet tooth.

Here is a recipe for using artificial sweetener. (Don't add Nutrasweet, as when it boils it loses "sweet".)

Sweet cuke slices

10 pounds medium cukes
1 cup salt
2¼ qts. white vinegar
2 Tbsp. Sucaryl solution
½ cup mixed pickle spices

Wash and slice cukes ¼-inch thick. Mix cukes with salt and enough ice water to barely cover. Let sit overnight, covered. In morning, drain and rinse with cold water. Combine vinegar, liquid Sucaryl and spices. Boil 1 minute. Add cukes and bring to full boil. Immediately pack cukes into clean, hot, sterile jars to within 1 inch of top. Fill jars with hot, spiced vinegar to within ½ inch of top. Wipe rim and seal. Makes about 12 pints.

I have been a suburban dweller for all of my short life and finally have moved to the country. One of my main challenges is trying to figure out how to move huge grape vines. A large underbrush is killing them slowly and to get rid of the brush we are having the area flattened so I can begin gardening. The problem is that I wish to save these vines in the process. Will this be possible? If so how?

Krysten
kcampbell4@earthlink.net

It can be hard to transplant large grapes, especially if they are being stressed by crowding out by brush. If they were mine, I'd choose a few vines that were in good shape and hand clear the brush out from around them. Then apply a heavy mulch of 10 inches of leaves or straw, fertilize, then prune them back rather severely to strengthen the root system. Watch the area well and pull/chop out any of the offending brush that pops up through the mulch.

You'll have to be quite aggressive at first, but you'll slowly gain ground. If this seems impossible, you might try to move a vine or two by pruning severely, then making sure you dig *deeply* around the root system, ball it with burlap, and immediately move to a "clean" spot, previously prepared by double digging. Make sure to plant the root ball as deeply as it was in its previous spot. Water well, then mulch.

You can also start new vines from the huge old ones by selecting a branch, drawing it down to the earth, and burying a length with at least two or three leaf buds beyond the buried portion. This is called layering and works quite well on most grapes. In a short time new roots will sprout into the soil and you may sever the branch from the mother plant and prune the excess branch length to a strong but convenient size. Replant immediately.

I'm hoping you can help me, since Backwoods Home seems to be one of the few places where I've found anything about canning. I'm growing tomatoes, cilantro and jalepeños in my backyard. I've planted this stuff for salsa in my garden, and have no recipe to follow!

Eric Kiefer
Pittsburgh, PA

Salsa is like a marriage, no two are alike. I'll enclose a basic recipe, but you'll have to taste it while it's fresh and adjust the cilantro and spices to your liking. The only thing that is "a must" is the processing time. I used to

process my salsas in a hot water bath canner, but now use a pressure canner, as it is possible to use too many low-acid veggies, such as onions and peppers, for the hot water bath canner. A pressure canner provides needed safety, just in case.

Salsa

40 medium tomatoes
5 cups finely chopped onions
4 cups finely chopped celery
2 cups finely chopped jalepeños
(may use other peppers, to taste)
½ cup lemon or lime juice
½ cup finely chopped cilantro
5 Tbsp. salt

To peel tomatoes, dip in boiling water a few at a time for 30 seconds, plunge into cold water, then slip the skins off. Chop the veggies fine, add other ingredients in large pot. Bring to boil. You may add sugar to taste, if desired. Pour into hot jars, seal. Process pints 25 minutes at 10 pounds pressure. (Adjust the pressure, if needed, due to altitude.)

I have a simple way of making noodles with simply eggs and flour...they come out thick like dumplings! My problem is my new pressure cooker canning guide says not to can anything with flour in it. It says flour makes sterilization difficult. Why is this? I have bought chicken noodles soup in the store. Any information or insight would be greatly appreciated.

George Heintz
steelshepard@webtv.net

Every day I hear of things I've done for years...and even my Grandma did successfully for years, that "you can't do." I know companies are trying to be extra safe and keep people from harming themselves, but that's a new one for me.

I can egg noodles in chicken broth, with pieces of chicken quite often. They are also good with beef and carrots. I especially like them, as you

have "instant" meals that actually taste good.

Make your favorite chicken (or beef) soup recipe, then add dried noodles to hot mixture. Simmer just until limp. Pack into clean, hot quart jars. Wipe rims and seal. Process 75 minutes at 10 pounds pressure. Adjust pressure, if needed, for altitude.

My grandmother canned stewed tomatoes with macaroni for my grandpa. It was his absolute favorite meal.

I currently live on 3 acres, mostly wooded, in northern R.I. with my wife and children. I have had a dream of getting out of the rat race and building a wilderness homestead. So for the past five years I have been shifting gears toward that dream one step at a time. I started with a garden, then started heating our home with wood I cut on our land. After that I started canning and my latest achievement has been raising our Rhode Island Red laying hens. What do you think about raising a couple of goats on a mostly wooded lot. I have heard stories of oak shoots being poisonous for goats. Is this true. Any info would be great. Thanks for helping our dream stay alive.

Jim V.
Flintlock99@aol.com

Great going, Jim! Sure, I'd have goats...pretty near anywhere. Yes, oak sprouts, in quantity, can be toxic to goats. This usually happens when the goats have little else to eat. You'll have to use a little caution and common sense. Fence off an acre that is relatively clear. If there is no native pasture, dig up the clear areas and scatter some clover/brome grass pasture seed, just as if you were planting a lawn. While you wait for it to establish, build your goat barn and feeders. A good book on dairy goats is *Raising Goats the Modern Way*, by J.D. Belanger (Storey).

Then you are ready to shop for goats. When you have made your choice, bring 'em home and feed them

well on hay, inside. Then as you turn them out, monitor them, to make sure they don't gobble those oak sprouts. They are not going to drop dead from a mouth full or two, but a steady diet is *not* a good idea. Always make sure they have hay available. Most of the goats I've seen who had trouble from overeating oak sprouts and leaves had nothing else available to eat.

Should you run into trouble, usually begun with diarrhea, or should you really worry about the oak toxin, you can still have goats. Just "dry-lot" them. That is, keep them in a pen with no oak and feed them hay and garden scraps. They'll do fine and repay your family a thousand times over.

I've been cruising the net and came across an article by you about canning. You mention chokecherry jelly. I'd sure like to have that recipe. My last batch came out as syrup. (Still good, but too thin). Can you help?

Richard & Georgia Trathen
udwe@nemontel.net

Sometimes my jelly comes out too thin, too. I get into a hurry and mess up. We still love it, as I use it on pancakes, as syrup—gourmet syrup. So, with jelly, there is no failure. Okay, you say, I want jelly that jells. The most often-made mistakes are making too large a batch at one time (my usual reason for failing to jell) or not following the recipe exactly. This is a must-do for jellies and jams.

Chokecherry jelly

5 cups juice
1 package Slim Set Fruit Pectin
3 cups sugar

Extract the juice by adding ½ cup of water to 4 pounds black, ripe chokecherries. I squash the cherries by hand while heating them slowly on stove. Simmer while stirring constantly (or they'll scorch). Place a colander in large bowl or pot. Spread a clean piece of sheet or three layers of

cheesecloth, dampened, in a colander and carefully pour in the hot cherries and juice. Carefully gather and tie up top to make a "bag" and hang this on strong string and let it drip into a bowl overnight. After the dripping stops, squeeze the bag gently. Measure the juice. You may add ½ c water (no more) to get the exact measure. I use apple juice, instead of the water.

Add the juice and one package of pectin to the juice in an 8-quart saucepan or pot and stir well. Heat on high, stirring constantly, until the mixture comes to full boil. Stir in the sugar and mix well. Bring this to a full rolling boil while stirring and boil exactly one minute while still stirring constantly. Then remove it from the heat and skim off foam, if desired. Fill hot, sterilized jars quickly. Wipe off the rims and seal. Process immediately in hot water bath, which covers entire jars, for 5 minutes, longer for altitudes above 1,000 feet. Check your canning book for directions.

Remove and set the jars on dry folded towel until they're cold. This recipe works reliably for me. The lower-sugar recipe leaves the jelly with a more cherry-taste than with the extra cup of sugar. Δ

Read more of Jackie Clay's columns at

Backwoods Home Magazine's website:
self-reliance.com
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Use homemade decorations to brighten the holidays

By Olga Robertson

The holidays are a time to decorate your home, and even to make a little money by selling these homemade crafts. I'll show you several that are easy to create. I give them to friends as presents, but I also sell quite a few at good prices—\$35 for the Santa which is the first one I'll show you how to make.



Olga with some of her creations.



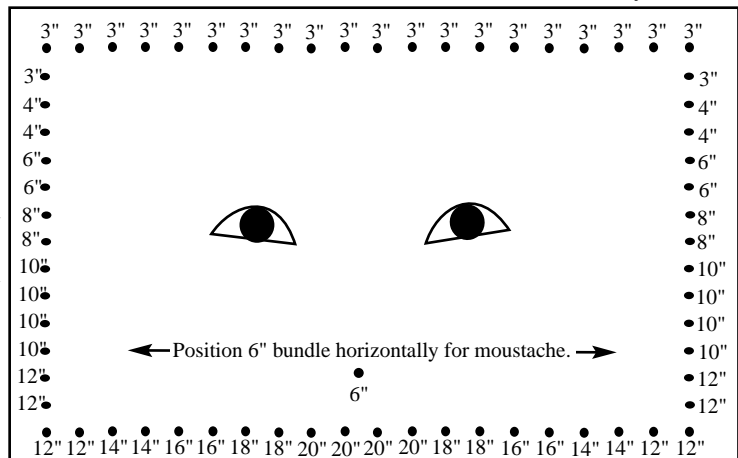
Yarn Santa

Materials: 36 x 20" red felt for hat, 6½ x 10½" pink fabric for face, 6½ x 10½" quilt batting to line face, 6½ x 10½" plastic (to make plastic, cut top and bottom off a one gallon bleach bottle, and cut a piece from the remaining plastic to the right size), black and blue (or your choice) waterproof pens for eyes, optional silver glitter, and about four balls of fluffy white, off white, or grey yarn for beard (Jiffy brand "mohair-look" yarn works well). The amount will vary between brands and thicknesses of yarns.

Refer to diagram and use an awl to punch holes through plastic ½" from edge and ½" apart all the way around the edge of the plastic (there should be 20 holes across the top and bottom, and 15 holes down each side). Draw eyes on pink fabric about 3½" from bottom and 3½" apart. Let dry. Put a little glitter on your finger and rub it over and around the eyes. Sew the hat. It should be 18" long, 10" wide at the base, and should narrow to 2" at the top. Sew on pom-pom. Sew one edge of hat to top of pink fabric. Sandwich quilt batting between face and plastic, and stitch together in several places on each side. Hand sew across top putting needle through holes in plastic.

Wrap bundles of yarn 20 strands each. If you have extra thin or thick yarn you can change the number of times you wrap the yarn. To wrap the yarn in accurate sized bundles, I use pieces of ¼" plywood that are 4" wide by however long my bundle is supposed to be. I have one board for every size of bundle (2 to 20"). Mark the half way point on each board, and tie a strand of yarn to tie the bundle with. You'll need 22-3" bundles, 4-4" bundles, 5-6" bundles (one for moustache), 4-8" bundles, 8-10" bundles, 8-12" bundles, 4-14" bundles, 4-16" bundles, 4-18" bundles, and 4-20" bundles. When you finish the bundles, don't cut the edges, leave them in loops.

Start at either left or right side at the top of the head. Run needle and yarn through corner hole and tie, leaving about a 15" tail of yarn. Now position 3" bundle vertically, with one end over the hat, and one end over face. Bring needle up and over bundle and tie in the back. Tie 19 more bundles across top, for a total of 20. Tie the remaining 3" bundles in a horizontal position, one on each side of the face, right below the previous bundles. Continue down the sides of the face and to the chin, increasing the size of the bundle as you go. After your first Santa, they'll be easy to make. You can make them as gifts, or sell them like I do for \$35.00 each.



Wood spindle candleholders and pinecone baskets

Old wood spindles from Pendleton Mills in Oregon make wonderful candleholders, if you can still find them. Tie ribbons around them, add a sprig of holly or a pointsettia and color coordinated candles and you have a beautiful table decoration.

If you live anywhere near a coniferous forest, it will be easy for you to gather enough pine cones to fill a basket to put by the fire place or at the door. Different types of trees produce very different cones. For a diverse arrangement, fill several rustic baskets with pine, Douglas fir, and Norway



Wrought iron

I buy old rusty wrought iron items such as these at garage sales for next to nothing. After a coat of black paint and some inspiration, these items make beautiful centerpieces. Make sure you use a rust inhibiting paint such as Rustoleum.



Wreaths

Wreaths need focal points just like other decorations. Start with a bow (wire-edged ribbon is easy to work with) and use clusters of berries, straw angels, or pine cones to spruce it up. These were made by the author, daughter Julie Robertson, and granddaughter Annie Duffy.

spruce. You can make beautiful tree ornaments by spray painting the cones gold or silver and hanging them with ribbon. (Always use gloves when handling cones with thorns.)

A way to save money on making holiday decorations is to shop for materials after Christmas and at garage sales, thrift stores, and flea

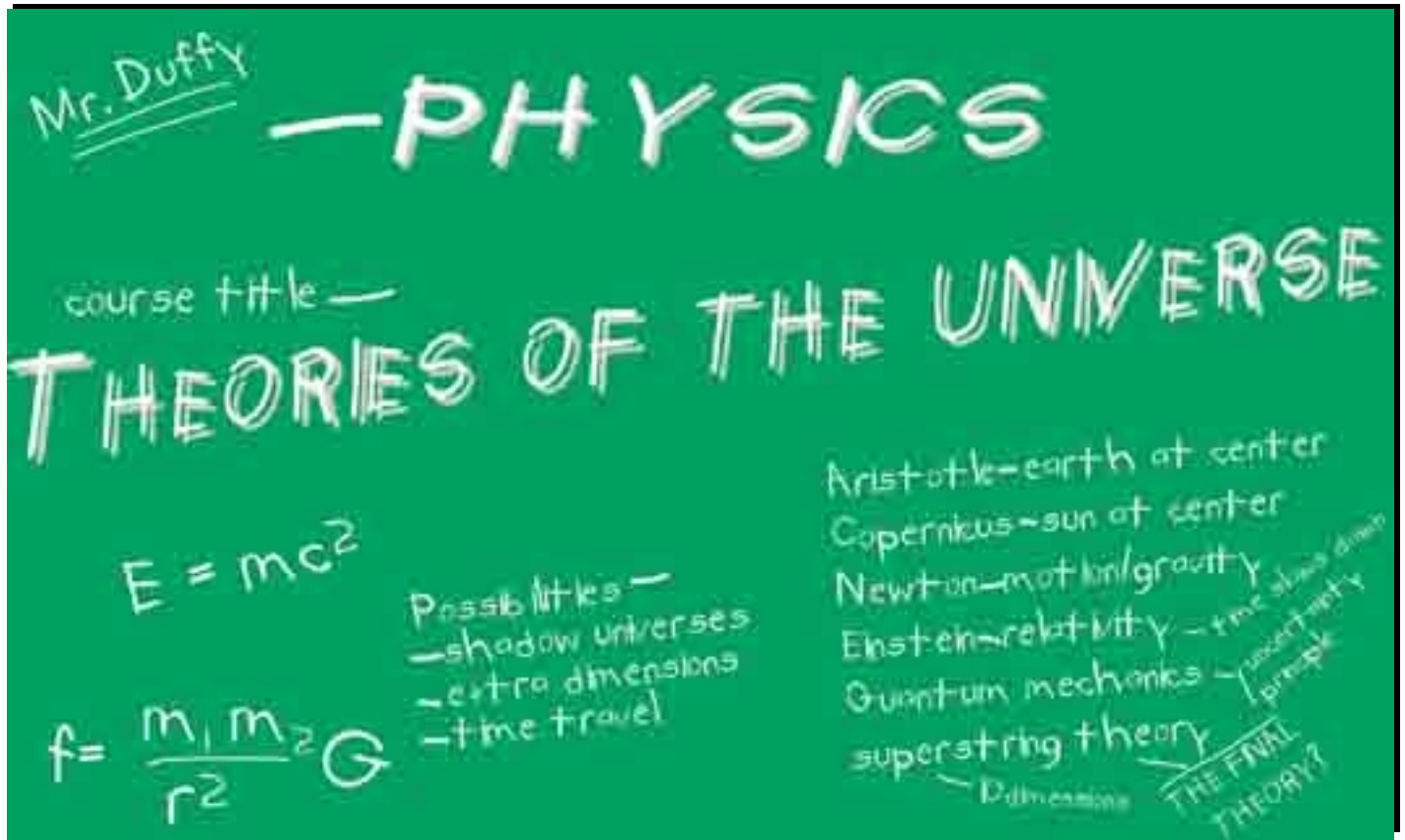
markets. A handy crafting tool kit will consist of scissors, pliers, wire cutters, small hammer, glue gun, paper and wood glue, a dust mask to use when sanding or spray painting. Also, keep a good supply of ribbons and candles. Remember to carefully pack and label everything after each holiday season. Δ

Partridge

My daughter, Julie Robertson, made a Partridge in a pear tree wall hanging for me 35 years ago, and its simple design has stood the test of time. Materials: $\frac{1}{4}$ x 16" long wooden dowel, 16 x 25" background felt (Julie used red), scraps of green, yellow, blue, black, and brown fabrics for leaves, pears, tree, and partridge. Refer to the photo to cut out leaves, pears, and partridge. The leaves and pears were sewn onto the background with two or three hand stitches. Decorate the partridge with sequins and beads.



HOMESCHOOLING: FOR ADULTS AND KIDS



By Dave Duffy

In a relatively short span of time, mankind has travelled from profound ignorance of our planet and the world in which we live to a rather detailed picture of not only our earth, but the solar system, the universe, and the forces that underlie the workings of most physical things. Not only do we have great understanding of the very large, such as clusters of galaxies on the fringes of the universe, but of the very small, such as quarks and gluons which comprise some of the subatomic particles and forces of nature.

Astoundingly, given the long amount of time we have inhabited this planet, most of this scientific knowledge has been acquired only within the last 400 years, ever since Galileo gazed upon the heavens through the newly invented telescope.

In fact, the two major pillars of science today, namely *relativity* and

quantum mechanics, were discovered just within the last 100 years. And in only the last 20 years, scientists have been working to unravel the secrets of *superstring theory*, which may prove to be the final frontier in our quest to understand the ultimate laws of nature.

This astonishing science underlies our entire modern mechanical, electronics, and computer civilization. Without it we would be back to horse and buggy days, wringer washers, and the pony express. Of course for some of us, like those who relish a lifestyle truly primitive, that would be a nice turning back of the clock. But even they would take advantage of the remarkable advances in medicine that are part of this modern science, or occasionally use the telephone or their computer.

In this article I would like to go back a couple of thousand years to the Greeks who were among the first to

propose scientific theories, and to travel forward in time on the backs of the great successful scientific theories that have advanced our knowledge and technology to where they are today. It is a fascinating tale of discovery, as strange as the science fiction stories it has often inspired. Even stranger are the new scientific theories of today, with their possibilities of time travel and their predictions of extra dimensions and parallel universes that may lie unseen just inches from our own.

I'll break the scientific theories up into five historical segments beginning with Aristotle and the ancient Greeks, whose science dominated scientific thinking for more than a millennium. Then we'll explore Copernican theory and Newton's classical mechanics, which dominated science until about a hundred years ago. Finally we'll visit the twin pillars of our modern science: relativity and quantum mechanics. We'll end up by exploring a modern

scientific theory that has some scientists buzzing with anticipation that they are onto something big, a theory that explains everything—superstring theory.

All are fascinating, and some, especially those that underlie the technology of our modern world, are downright bizarre.

A scientific theory is a working hypothesis

Before we examine the scientific theories, it's important to understand just what a scientific theory is. It is simply a proposal of how the world *might* work. When referring to modern physics, English physicist Stephen Hawking has said that a scientific theory "is just a mathematical model we make to describe our observations: it exists only in our minds." For simplicity of understanding, I will take a non-mathematical approach in explaining the theories.

What is important to understand about any scientific theory is that it is valid only until a better scientific theory comes along. The test of the validity of a scientific theory is that it must not only be able to explain present physical phenomena, but it must be able to make predictions of how future phenomena will behave. It is tested by physical experimentation, as in a laboratory, to determine if its predictions come true. No matter how many times experiment shows a theory to be a correct predictor, the next experiment may prove the theory wrong, thereby necessitating the need for a new theory or at least the modification of the current theory.

For example, when Isaac Newton proposed his theory of gravitation, the theory not only accounted for the orbit of the planets around the sun, which had already been theorized, but it allowed us, for the first time, to accurately predict the ocean tides, among many other things.

Newton's theory of gravitation worked fine for more than 200 years, and even today we use it to help calcu-

late the trajectories of rockets we send into outer space. But scientists knew the theory was slightly off because it didn't accurately account for some things, such as the orbit of Mercury around the sun.

So in the early 1900s Albert Einstein proposed a new theory of gravitation, which was included in his general theory of relativity. Einstein's theory was able to accurately calculate the orbit of Mercury, plus his theory made a great many predictions that were later experimentally shown to be accurate.

So you see, even though Newton's theory was a bit off, it was still very useful to science for 200 years, and we still use it today.

The two major theories that underlie our modern world are relativity and quantum mechanics, which is the most successful theory in history. They contradict each other in certain respects, so we know there is a problem that must be resolved. One potential solution is a new theory called superstring theory, which holds the promise of unifying relativity and quantum mechanics into a "theory of everything."

The point is that scientific theories can never be said to be true. They can only be said to be useful working hypotheses that we can use to explain physical phenomena and allow us to advance our technology.

Though Newton's theory was slightly off, it still allows scientists, even today, to plot the orbits of the planets and comets, and to determine the masses of galaxies though they are millions of light years away. And even though Einstein's theory *may be* slightly off, it still enables us to build nuclear power plants.

The great modern American scientist, Richard Feynman, who was the equal of Newton and Einstein in brilliance, equated scientific theories with educated guesses about how Nature works. He said science's main utility was to allow us to guess a theory based on the success or failure of previous theories, make improvements in

our technology, then guess an even better theory that allows us to improve even more.

Let's go back about 2340 years and examine the first great scientific guess that became a scientific theory. It was by Aristotle, a Greek philosopher.

The first great theory: Aristotle and Ptolemy

In his work, *On the Heavens*, Aristotle proposed that terrestrial, or earthly, things were completely different than celestial, or heavenly, things. The natural state for celestial things was to be in motion, and the natural state for earthly things was to be at rest.

The earth was round and located at the center of the universe, and the fixed stars rotated about the earth on a celestial sphere that surrounded the earth.



Aristotle

Earthly things were made up of four basic elements: water, earth, fire, and air. Earth and water flowed toward their natural resting place at the center of the earth, with water resting on top of earth. Fire and air's natural state was to rise toward the heavens.

In 150 AD, Ptolemy published his *Almagest*, which provided the mathematics to explain the motions of the



Claudius Ptolemy

wandering stars, which included the moon, sun, and the planets. Mathematics was to become the language of physics, and Ptolemy's detailed calculations became part of Ptolemaic/Aristotelian theory.

In Ptolemy's model the earth is a sphere, and the sun, moon, and planets are spheres that rotate in perfect circles around the earth. The Aristotelian

idea that circular motion was perfection was to stay with science until the 16th century.

Although other ancient Greeks had suggested that the sun was really at the center of the earth, and that the earth rotated about it, the Aristotelian/Ptolemaic theory of the solar system came to be accepted and it held sway in science for about 1400 years.

The second great theory: the Copernican system

One of the problems with Ptolemy's perfect spheres and circular motion was that he had to devise many deviations from the trigonometry he used to account for the unusual motions of the roving stars, which we now know are planets.

Many scientists realized something was wrong with the theory, and finally a Polish priest named Nicholas Copernicus revived the ancient Greek idea that placed the sun at the center of the universe and had the earth and

planets rotating about it.

His work, *On the Revolutions of the Celestial Orbs*, was published in 1543. Although this was a significant step forward in science, its significance was not generally appreciated until the Italian astronomer, Galileo, looked through the newly invented telescope

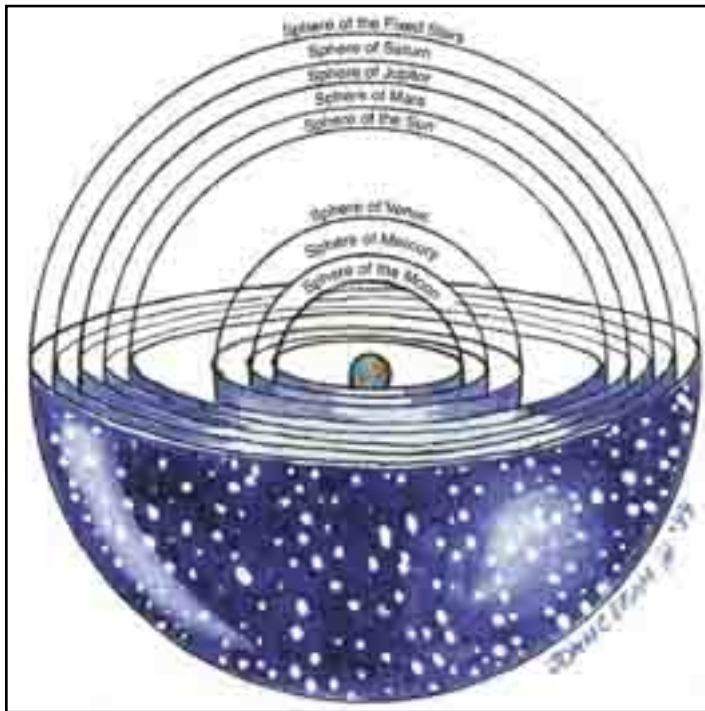


Nicholas Copernicus

in 1609 and discovered the moons of Jupiter.

Jupiter and its moons looked like another solar system to Galileo, and he began to publicly support the idea that the earth and the other planets must rotate about the sun. As he was the greatest scientist of his day, his support for Copernican theory alarmed the Pope, whose Catholic Church supported Aristotelian theory. Galileo was summoned to Rome and ordered to recant, which he did. Galileo died several years later, still under house arrest because of his theory.

Nevertheless, Copernican theory gained support both within and without the scientific community. But great debates raged over exactly how



Ptolemy's cosmological model placed the earth at the center of the universe, with the moon, sun, planets, and stars orbiting it on spheres. The outermost sphere carried the fixed stars.



Galileo Galilei

the planets moved, so in the early 1600s, Tycho Brahe, a Dane, set up astronomical observing stations on an island he owned near Copenhagen and recorded the exact movements of the planets night after night.

The data collected was examined by the German mathematician Johannes Kepler, who deduced that the planets did not move in perfect circles, but in elongated circles called ellipses. Kepler's laws of planetary motion showed how to calculate their movements precisely.

It was not only a great advance for science, but Brahe's detailed observations showed that it was possible to test, verify, and refine a scientific theory by carefully *observing* the phenomena the theory predicts—in this case the orbits of the planets about the sun.

The third great theory: Newton's mechanics

The 1600s began an age of great scientific discovery. Frenchman Rene Descartes published his *Principles of Philosophy*, German Ole Roemer was able to determine a reasonably accurate speed of light, and a host of scientists in countries throughout Western Europe theorized and experimented in an effort to understand the laws of Natural Philosophy, which is what we now call science.

But it was not until 1687, when Englishman Sir Isaac Newton published his *Mathematical Principle of Natural Philosophy*, that a great and powerful new theory called classical mechanics, sometimes called Newton's mechanics, was born.

Newton's *Principia* (it was published in Latin) was probably the most important scientific work ever published, and it laid the foundation for modern science. In it he outlined his laws of motion and his theory of gravitation. Because an appropriate mathematics did not exist to explain his new laws, the brilliant Newton invented the calculus.



Isaac Newton

Newton not only explained how the planets orbited the sun in ellipses, but his universal law of gravitation gave precise calculations to show how every object attracts every other object: *the force is proportional to their masses and inversely proportional to the square of the distance between them.*

It was a universal law, Newton said, and it applied as equally to an object falling on earth as it did to a planet orbiting the sun. He said an object's weight was a combination of its mass and the force of gravity.

His three laws of motion explained most known earthly and celestial motion:

- *A body moves in a uniform motion, or remains at rest, unless a force acts upon it.*
- *The change of motion is proportional to and in the direction of the force acting upon it.*
- *For every action, there is an equal and opposite reaction.*

Newton also essentially invented the science of optics. His early experiments with a prism showed how light, which he described as a stream of particles, could be divided into its various colors.

But it was Newton's mechanics, plus his method of using *experiment* and *observation* to discover things, that

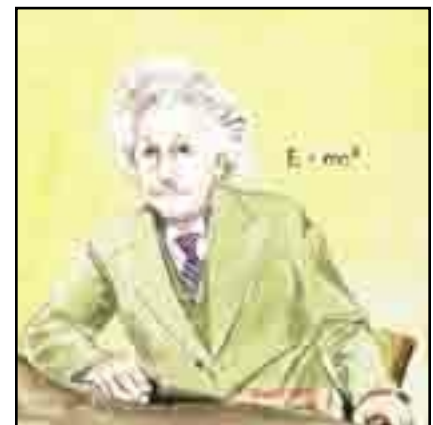
would give rise to an unprecedented age of scientific discovery and invention during the 17th, 18th, and 19th centuries. Numerous laws, including those governing magnetism and electricity, were discovered, and they led to numerous inventions and technological improvements that brought on an increasingly sophisticated and technological era.

Ecclesiastical resistance to the new science not only lessened, but many scientists, who were often religious men, saw the new discoveries as an unfolding of God's laws.

Newton himself was a deeply religious man, and he and many scientists who followed in his footsteps thought of themselves as helping to bring mankind closer to God by uncovering God's laws embodied in Nature. Only much later was science divorced from religion and thought of as a totally separate pursuit.

The fourth great theory: Einstein's relativity

Newton's classical mechanics worked well until the latter part of the 19th century. But new discoveries of the laws that govern electromagnetic waves contradicted some of Newton's laws. For example, in 1864 James Clerk Maxwell published his four *Maxwell's equations* which showed that electromagnetic radiation travelled at a constant speed, which seemed to violate Newton's law that



Albert Einstein



This is the map of the solar system today. It is not to scale; for example, Pluto, the outermost planet, would be much further out from the sun. We now know that our sun is only one of about one hundred billion stars in our galaxy, the Milky Way. The Milky Way, which is a hundred thousand light years across, is one of about one hundred billion galaxies we can see with modern telescopes.

speed had to be relative to something fixed. Maxwell realized that light was merely a form of electromagnetic wave. But, just as waves in water need water to travel through, and sound waves need air to travel through, for light to consist of waves it was thought there had to be a medium for them to travel through. So an *ether* was postulated that filled the universe so light could travel through space. The existence of this ether was necessary so Newton's theory would not be violated.

But in 1887, in a famous experiment using light to measure the speed of the earth through the ether, it was discovered instead that the speed of light did indeed seem to be constant, regardless of the earth's movement, in accordance with Maxwell's equations.

Then in 1905 Einstein introduced his *special theory of relativity*, which dispensed with the idea of an ether and

stated that the speed of light was constant at 186,000 miles per second (670 million miles per hour), and it did not have to be relative to anything.

Einstein's theory also had some rather remarkable things to say:

- Nothing can go faster than the speed of light.
- Time slows down for anything approaching the speed of light.
- Each person has their own measure of time so that the same event can occur at different times for different observers.
- Mass and energy are equivalent. This is embodied in his famous equation, $E=mc^2$.

In 1915, Einstein followed up the *special theory* with his *general theory of relativity*. This addressed gravity and stated more startling things:

- Space and time are not separate entities but are combined in what he called space-time.

- Large objects, such as the earth and sun, warp space and time and are manifested as gravity.

If you are confused, so was the entire scientific community. Only a few scientists immediately caught on to the scientific revolution Einstein had wrought with his theories of relativity, but the theories would withstand the test of years of experiments. Newton's classical mechanics had finally been overthrown.

One of the possibilities of Einstein's relativity is time travel into a relativistic future. The laws of physics have shown that what is called the *arrow of time* can only go into the future, so travel backwards is impossible. But if one could devise a spaceship to travel at a significant fraction of the speed of light, one could travel into the future of those left behind.

The fifth great theory: quantum mechanics

The imprint of Einstein's genius was not just his theories of relativity. He made significant contributions to *quantum mechanics*, which is the most successful scientific theory of all time.

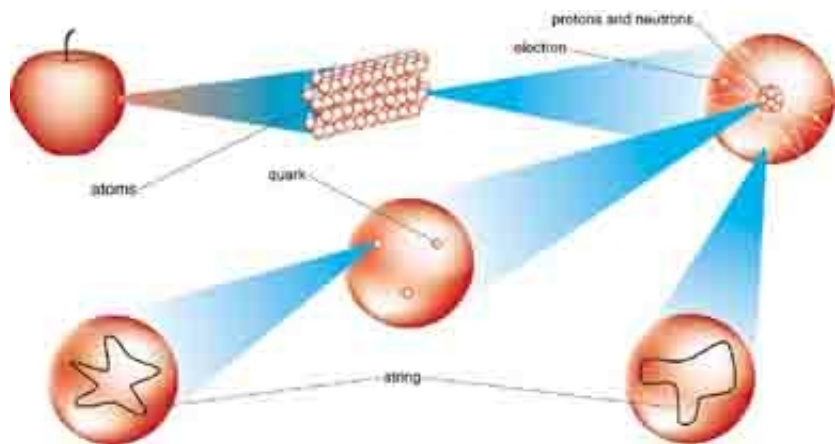
Quantum mechanics governs, among other things, the behavior of integrated circuits, which are the key components of computers, and it underlies our ability to probe human DNA and control nuclear power. Not to mention that it allows us to have the lasers which operate CD players and the bar code readers in grocery stores.

It was Max Planck who, in 1900, first suggested the idea of quanta emissions of energy in discrete packets. In 1905 Einstein said light consisted of particle-like quanta, even though most scientists considered light to consist of waves, not particles.

Quantum mechanics is a theory that says energy is emitted or absorbed only in discrete packets called quanta. The quanta can travel from point A to point B by any of an infinite number of routes, each route being determined by a mathematical probability associated with the route. We now know the energy associated with quanta acts both like a wave and a particle.



Richard Feynman



Current theory: quarks and electrons are the smallest particles of matter, but superstring theory says these may be actually vibrating strings.

One of the key elements of quantum mechanics is the uncertainty principle, which states that either a particle's position or velocity can be measured precisely, but not both. In a nutshell, quantum mechanics states that nothing can ever be known for sure because you can only have a certain probability that a specific event will occur, and that matter, in its most basic form, behaves in a way that is inexplicable.

Confused? The great American physicist Richard Feynman once said, "I think I can safely say that nobody understands quantum mechanics."

The present theory of quantum mechanics was developed in the 1920s by Werner Heisenberg, Erwin Schrodinger, and Paul Dirac. Richard Feynman reformulated it in the 1940s to make it easier to work with and to make it compatible with relativity.

But relativity and quantum mechanics are still not completely compatible. Where relativity describes the world of the very large, such as stars and galaxies, quantum mechanics describes the world of particles as small or smaller than atoms, but it describes it more precisely than any theory in history, in spite of the uncertainty inherent in the theory. It seems to be the basic nature of things to be uncertain at the atomic and subatomic level.

The next great theory: superstring theory

As you can see, the closer we get to modern times the more unintuitive scientific theories become. No more clear and simple ideas of planets orbiting stars; modern theories are simply strange, and superstring theory is as strange as they come.

Superstring theory is the latest guess, if we can use Richard Feynman's terminology. It is a mathematical guess at how relativity and quantum mechanics can be unified into one grand "theory of everything."

The diagram on this page gives the present scientific view of matter's tiniest components, with the vibrating strings being what superstring theory says are the *tiniest* components.

Superstring theory is only a mathematical description at present. It makes no predictions about how phenomena will behave, as all the previous theories did. Mathematically, it works not in the four dimensions we are used to (3 space and 1 time), but in either 10 or 26 dimensions. And it suggests the possibility of shadow, or alternate, universes. Did I mention bizarre?

The extra dimensions may be curled up in the space-time of the subatomic world, but they do not seem to be available to humans. But as a mathe-

SIGNIFICANT DATES FOR SCIENTIFIC THEORIES

340 BC	Aristotle	publishes <i>On the Heavens</i> , places earth at center of universe
2nd century AD	Claudius Ptolemy	publishes <i>Almagest</i> , gives paths of planets around earth
1514	Nicholas Copernicus	publishes <i>On the Revolutions of the Celestial Orbs</i> , places sun at center with earth and planets orbiting
1609	Galileo Galilei	discovers moons of Jupiter, supports Copernican theory
early 1600s	Tycho Brahe	makes exact astronomical observations of planets
1600s	Johannes Kepler	deduces laws of planetary motions, shows planets orbiting sun in ellipses
1644	Rene Descartes	publishes <i>Principles of Philosophy</i>
1676	Ole Romer	determines fairly accurate speed for light
1687	Isaac Newton	publishes <i>Philosophiae Naturalis Principia Mathematica</i>
18th, 19th century	many scientists	Numerous discoveries and inventions
1864	James Clerk Maxwell	publishes <i>A Dynamical Theory of the Electromagnetic Field</i>
1900	Max Planck	first suggests emission of quanta
1905	Albert Einstein	publishes <i>special theory of relativity</i> , then publishes paper suggesting light consists of particle-like quanta
1915	Albert Einstein	publishes <i>general theory of relativity</i>
1924	Edwin Hubble	discovers evidence of other galaxies
1925 and 1926	Werner Heisenberg, Erwin Schrodinger, and Paul Dirac	formulate various versions of quantum theory
1926	Max Born	explores role of probability in quantum theory
1926	Werner Heisenberg	introduces uncertainty principle of quantum theory
1929	Edwin Hubble	discovers universe is expanding
1940s	Richard Feynman	reformulates quantum theory with quantum electrodynamics
1970s and 1980s	John Schwarz and Michael Green	develop superstring theory

mathematical description of the universe, some scientists think superstring theory may be on the verge of unifying relativity and quantum mechanics and so unify all the particles and forces of Nature.

If all this sounds a bit preposterous, it is simply because you are not used to thinking the way modern scientists must think to comprehend these complex, but useful, theories.

Where are we now?

So what is the status of our scientific knowledge and theories today? We have come a long way from Aristotle and Ptolemy.

On the large scale, we know that our earth is one of nine planets that orbit an ordinary yellow star situated on an

outer arm of a spiral galaxy that contains about one hundred billion other stars. Our galaxy, called the Milky Way, is about one hundred thousand light years across, and it is one of about one hundred billion galaxies that can be seen with modern telescopes.

On the small scale, current theory says matter is made up primarily of two basic particles—electrons and quarks—but we have discovered many other particles.

There are four forces in Nature: electromagnetic, gravitational, strong nuclear, and weak nuclear. The force particles associated with each force are the photon, graviton (the only one not yet found experimentally), gluon, and weak gauge boson.

Had enough? Confused enough? Want more? You'll have to wait until next issue, when we'll begin examining some of these theories in more detail, beginning with Einstein's special theory of relativity. You'll find out just how fast you have to go to travel into the future.

In the meantime you may want to read these books, which offer a non-mathematical approach to science:

The Elegant Universe by Brian Greene

A Brief History of Time by Stephen Hawking

Q is for Quantum by John Gribbin

The Character of Physical Law by Richard Feynman. Δ

...DICTATORSHIP

Continued from page 22

"Which laws?" Dave asked.

"Start with RICO, the *Racketeer Influenced and Corrupt Organizations Act*. When RICO was passed, it became *legal*, despite the Fourth and Fifth Amendments to the Constitution, for the police to deprive citizens of property without due process. They can do this simply on the suspicion alone that the property is linked to a crime. They don't have to have a warrant, they don't even have to prove their accusations. RICO is not only unconstitutional, it abrogates the body of common law and tradition our legal system rests on. The state no longer has to prove citizens are guilty of anything to seize their belongings; the citizens must prove they are innocent through an almost impossible and expensive process which includes posting bonds which, in theory, the government can also seize."

"But how does government benefit from these laws?" Dave asked.

"The value of many of the seized goods, including cars, homes, boats, guns, land, jewelry, and other hard goods, as well as cash, were supposed

to be added to the budgets of various law enforcement agencies to help fight the War on Drugs. But politicians and other bureaucrats aren't stupid. Once they saw the vast amounts of extra money going into law enforcement, they weren't going to sit by without getting a slice of the pie. However, they couldn't just take it. They could, on the other hand, cut the budgets of law enforcement by the dollar amount of the goods seized."

"So police budgets didn't get bigger," Dave said, "the sources of their funding just got shifted."

"That's right," Mac said, "And what we have now are the police departments of America with an economic stake in keeping these unconstitutional laws on the books and enforcing them."

"Are they the only part of the government that benefits from the War on Drugs?" I asked.

"No. The same goes for prisons. If the War on Drugs were dropped and the P.O.W.s, the hostages taken in that war, were sent home, some three quarters of our prison population would disappear.

"You are aware that today the United States imprisons a greater percentage of its own citizens than any other country in the world, aren't you? So what would all the prison guards currently employed to do this do? Where would the wardens get their next jobs? What would happen to all those communities in the middle of

The livelihoods of police, bureaucrats, judges, lawyers, and many others depend on drugs being illegal and remaining illegal.

nowhere whose main industry is the prison? As prisons closed, real estate would plummet in those communities and people would lose their life savings. Do you think someone with \$100,000 into a house, in one of these backwater towns, wants the illegal War on Drugs stopped? Think about it.

"Then, how do you think lawyers would fare if drug laws went away? Have you ever stopped to think of how much of the legal system is employed prosecuting or defending people in drug cases? Even court appointed lawyers are on the payroll. How many lawyers would suddenly

Amendment V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

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Amendment VI

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the Assistance of Counsel for his defence.

discover they can't afford to feed their kids if all the laws concerning drug and other victimless crimes disappeared?

"And the economics reaches even beyond them. It goes all the way to corporate America which manufactures drug detection chemicals and equipment, builds prisons, even makes uniforms. Many livelihoods depend on these laws, and the amount of money involved runs into the hundred of billions. It's more money than goes through any of the corporate giants in America today.

"People are going to prison, losing their property, having their lives destroyed, and sometimes they are dying because of these unconstitutional laws. And we all have blood on our hands."

He looked down at his feet, then up again at us. "Do you guys want to talk about baseball? Or girls?" he asked.

I laughed. Dave didn't. "I want to talk about this," Dave said.

Mac nodded and leaned forward. "Okay, but let me tell you something: The rights we bought with blood 200 years ago we now exchange for loaves of bread. As a friend of mine once said, 'the War on Drugs is nothing more than a Full Employment Act for lawyers, judges, policemen, prison systems, corporations, and their attendant bureaucracies,' and he's right."

"What about the people who give drugs to children?" I asked.

"Are you insinuating that children have become a rational basis for how we treat everyone else with our drug policies? Because we don't want our kids to have drugs, it's okay to jail every adult we catch lighting up a joint or snorting a line? If that's your intent, we don't want our kids to drink, so you shouldn't object if we use that logic to jail everyone who drinks a beer. And we certainly don't want our kids having underage sex, so your reasoning can become the foundation for throwing their parents in jail for the very act of procreation."

"Drugs are different from alcohol and sex," I said.

The Founding Fathers feared a professional army. They believed this country should depend on the militia—and I'm using the word 'militia' in the way they used it in the Second Amendment, meaning the body of citizen, not the National Guard or some other professional organization. Professional armies lose their allegiance to the citizenry and have a history of becoming the accomplices of tyrants.

"Yes, they are, but the logic you're using can be applied to more than one case, and logic is independent of the subject content. This is something discovered at least as far back as the Greeks and it hasn't been in serious dispute among mathematicians or philosophers since."

Dave and I looked at each other.

"We're imposing this dictatorship on ourselves," Mac said. "And as we invest more power in the government, we not only get used to less freedom, but the government itself has more power to enhance and entrench itself. The result is that we have less control

over it and it is less and less responsive to us."

"There must be a way we can change it," Dave said.

"We can change it. But to change it, we'd have to change ourselves, and I don't see that happening."

"But there's got to be a way," Dave persisted.

"I used to say we could change things at the polls, but I now realize we won't. Mostly because there just aren't enough of us who see what's happening to make a difference at the polls.

Jury nullification of bad laws

"But there's still one hope left. Historically, many bad laws have been countered in the courtrooms of America. It doesn't take a majority to counter bad laws there."

"Any specific examples?" Dave asked.

"Before the War Between the States, there was the Fugitive Slave Act, a federal law which ordered the return of runaway slaves to their masters in the slave states. However, the runaway slaves were entitled to trials and prosecutors soon discovered that, as the trials took place where the runaway slaves had fled—in the North—northern juries frequently ignored the law and voted their consciences allowing the slaves to remain free, despite federal law. It took only one person on a jury to hang the jury and block the return of a slave to his or her owner. This necessitated a retrial which slave owners didn't like. But more often whole juries refused to rule against the return of the slaves, making a retrial impossible and ensuring the slave could remain free. It soon became all but impossible to enforce the runaway slave laws, at least until the southern states had a federal law passed that prohibited jury trials in these cases.

"Another good example comes from our grandparents' time. Prohibition was repealed because again and again

government prosecutors couldn't get convictions. Juries refused to convict bootleggers and speakeasy owners despite both the 18th Amendment, which outlawed booze, and the Volstead Act, which put teeth into the Amendment. Both were the 'law of the land,' but they were laws that most of the American people knew were wrong. Individual jurors frequently hung juries and, in other cases, convinced fellow jurors to acquit the accused so there could be no retrial. Prosecutors finally stopped bringing the cases to trial and Congress and the States finally passed the 21st Amendment which repealed the Prohibition laws."

"Why aren't we doing this in courtrooms today?" I asked.

Stacking juries

"One of the things the government did back in the 19th century to finally stop juries from nullifying the Fugitive Slave Act was to change the law so that runaway slaves could no longer have the benefit of jury trials. Today, our government has learned to get around jury nullification by barring anyone from juries who disagrees with the laws or who knows they're unconstitutional."

"Sounds like jury rigging," Dave said.

"It is."

"How does the government identify a potential juror who might nullify the law?" I asked.

"The government uses a process called *voir dire*. In French the term means 'to speak the truth.' They use it to interrogate jurors and get rid of anyone who disagrees with the law. There was a time when about all jurors were asked was their names and whether or not they could bring a fair verdict in a trial. Nowadays, *voir dire* is the tool the government uses to ensure that no one who would vote their consciences can be on a jury and that those who are left on the jury, though they may still disagree with

the law, are compliant and will bring a verdict of guilt even when the law is outrageous or unconstitutional.

The whole aim of practical politics is to keep the populace alarmed—and thus clamorous to be led to safety—by menacing it with an endless series of hobgoblins, all of them imaginary.

H.L. Mencken

"Today it is often the only way the government can get convictions with bad laws. To those who think drugs should be outlawed, this practice may sound acceptable. But it's the equivalent of the government barring anyone who believes in the freedom of speech from a jury when it's trying to suppress speech or, if it wanted to suppress religion, barring anyone from juries who believe in the freedom of religion. And it's the same with drugs. Anyone who clearly sees this as a violation of our 9th Amendment guarantees is thrown off the jury by a government employee, the judge. Only those who agree with the government when it commits illegal acts, or who will be compliant even when they know the law is wrong, are allowed to sit there. Does this sound like freedom to you?"

I said, "One of the times I was on jury duty the judge specifically mentioned jury nullification and announced to us that we weren't there to change the law. He said that's what we have the legislature for."

"Of course he did. By first tying the hands of defense attorneys—not letting them plead for jury nullification when the law is bad—then falsely informing jurors that they cannot cast their votes against bad laws in the jury room, government prosecutors roll up an impressive string of victories and make it appear as though they have the complicity of the citizenry when unconstitutionally destroying a defendant's life."

"What happens if the defense lawyer actually asks the jury to consider jury nullification?" Dave asked.

"He can be fined or jailed for contempt of court, he can be disbarred, or the judge can even declare a mistrial."

"Are many people likely to hang a jury or get the accused off in a drug case?" I asked.

"In public opinion polls, some 30 percent of people don't believe marijuana should be a crime. The state now goes out of its way to keep these 30 percent out of the jury box during drug trials. And as long as the citizens of this country are too dense to see this, the government will continue to stack the juries. And drug cases aren't the only cases they do this in; they do it in *all* of them.

"By the way, the government doesn't always have to stack juries to get convictions. There are many cases where you can be deprived of your property or be thrown in jail, but our government does not allow you a jury trial."

"Like when?" I asked.

"IRS courts do not allow a jury of your peers to try you, and many states and the federal government routinely deny defendants jury trials if the sentence that can be imposed is six months or less. They can do this even if there are multiple charges and the six month sentences are going to run consecutively. This way, our own government has found ways to put people away for years in clear violation of the the Fifth and Sixth Amendments to the Constitution."

"You don't sound like you have much faith in the American court system," Dave said.

Mac leaned forward again. "If Christ had a jury trial in modern America, the judge would bar from the jury anyone who would vote his or her conscience, and he'd tell the remaining jurors they were not there to exercise their consciences, but only to determine the facts in the case. Under those circumstances, even Christians left on the jury would vote, albeit reluctantly,

for crucifixion unless they're black."

Can blacks save freedom?

"What do you mean, 'unless they're black?'" Dave asked.

"White Americans are more apt to bring a conviction even if they disagree with the law or feel the law is unfair, unjust, or applied unfairly, than blacks are. Blacks often have first-hand experience, either personally or through family, friends, and acquaintances, with bad laws, unfair laws, and police lying—called *testilying* among the police. A black juror is also more likely than a white juror to defy the judge's instructions and acquit a defendant—even if the prosecutor proves his case—when he disagrees with the law. Whites are more compliant when confronted by the law. It would be ironic if American freedoms were saved by blacks, the people whose families were so recently slaves, while white Americans continue to behave as sheep. The problem, of course, is that government's solution to this would be to choose jurors based on racial profiling, just as traffic stops and airport strip searches are based primarily on racial profiling.

"You make things sound like they're never going to change," Dave said.

"What about judges?" I asked. "Why don't they step in?"

"The judge can be your worst enemy in the courtroom. Judges routinely deny you the benefits and protections of the Constitution. For instance, if you're arrested on a firearms charge, say carrying a concealed weapon without the local jurisdiction's consent, you will not be allowed to use the Constitution, specifically the 2nd and 14th

Article. V.

The Congress, whenever two thirds of both Houses shall deem it necessary, shall propose Amendments to this Constitution, or, on the Application of the Legislatures of two thirds of the several States, shall call a Convention for proposing Amendments, which, in either Case, shall be valid to all Intents and Purposes, as Part of this Constitution, when ratified by the Legislatures of three fourths of the several States, or by Conventions in three fourths thereof, as the one or the other Mode of Ratification may be proposed by the Congress; Provided that no Amendment which may be made prior to the Year One thousand eight hundred and eight shall in any Manner affect the first and fourth Clauses in the Ninth Section of the first Article; and that no State, without its Consent, shall be deprived of its equal Suffrage in the Senate.

Amendments, as part of your defense. This is despite the fact that Article VI of the Constitution says, and the Supreme Court has already ruled, that the Constitution is the law of the land.

"Judges often tell defendants they cannot refer to the Constitution as part of their defense and, if asked, they tell jurors they are not allowed to consider the Constitution in their deliberations. Of course he's full of it, but most people don't know this so jurors become willing accomplices with the state in violating the defendant's rights.

"Shouldn't the Supreme Court be deciding what our rights are in courtrooms?" Dave asked.

"I think the Supreme Court has done a lousy job of this, especially in recent years," Mac said. "More and more it surrenders our rights to government demands.

"The problem with allowing the Supreme Court to be the final arbiter and interpreter of the Constitution is that we now have a branch of the federal government deciding what the rights of the states and the citizens are. It was never the intent of the Founding Fathers to have any branch of the fed-

eral government, or any local government, decide what our rights are. And this is a power not mandated by the Constitution. Read it. Nowhere is it written that the Supreme Court can interpret our rights.

"It happens that in 1803, in the decision *Marbury vs. Madison*, the Court assumed the power to rule on the constitutionality of laws passed by the Congress, and I don't

object to that. But we shouldn't depend on them to be the sole authority when it comes to our rights."

"Do you have a solution?" Dave asked. "Is there an alternative to letting the Supreme Court decide what our rights are?"

"Of course I do. I've always maintained that the Constitution and, at least, the first 10 Amendments were written so we could understand them. So if anyone should interpret our rights, it's we the people. The Supreme Court can still make rulings and pronouncements on the constitutionality of laws just as it does today and just as lower courts do during the appeals processes."

"You're saying we should allow defendants to argue the law of the land?" Dave asked.

"If they feel it's appropriate, and if they feel the local laws, or congressional laws, or bureaucratic edicts are in violation of their rights, let them make their plea to a jury. Let them make their plea to the people. These are, after all, *our* rights," Mac said.

"You mean let individual juries decide the law of the land?" I asked. "I'd rather have the Supreme Court do it."

"No, let them decide the merits of each case. If the defendant and his attorney feel there's a constitutional reason why the defen-

Article. VI. (clause 2)

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

dant should be acquitted, let them argue it before a jury."

"Then why don't we do it?" I asked.

"Are you kidding? If the people started considering constitutional questions on a case by case basis, judges, prosecutors, bureaucrats, politicians, legislators, cops, and who knows who else, would tremble in their shoes.

"Unconstitutional laws would be unenforceable. Take the drug laws, for instance. Let's say someone is caught by the feds with marijuana. The defense attorney presents the *facts* to the jury. First he says, Article I, Section 8 of the Constitution does not grant the federal government power to tell us what we can do with our own bodies. The Ninth Amendment to the Bill of Rights says we have certain unenumerated rights, and that medicating ourselves however we wish is among them. And Amendment XIV says that even the states cannot deprive us of our constitutional guarantees.

"Now, a good defense attorney is going to be more eloquent than that, but the fact is, quite a few juries are going to go into the deliberation room and wonder what right the government has here. They may not like drugs themselves. They may not even like the defendant or his attorney. But quite a few juries will see that the government is out of bounds and return 'not guilty' verdicts."

"What will this accomplish if it's only done one case at a time?" I asked.

"Prosecutors have a huge stake in winning their cases. They have limited budgets and their careers are measured by success. They will not bring cases to trial when they feel there's only a 50-50 chance of winning. They usually won't go to trial if they feel they only have a 90 percent chance of winning. They're looking for certainty. Granted, they'll take cases to trial they're sure they'll win and wind up losing them, but they wouldn't have taken it to trial if they'd known how

bad their chances were from the outset."

"Then why don't we do it?" I asked.

"They don't want you to."

"Who's they?" I asked.

"Who do you think they are? Judges, prosecutors, legislators, bureaucrats, the FBI, the IRS...you name it. Quite frankly, they *like* the setup they have."

"What would be the net result if we, the people, insisted on it?" Dave asked.

"We'd have fewer crazy laws, law abiding citizens wouldn't fear their government or the bureaucrats, and we'd be freer. Freedom. It's all about freedom."

"Why isn't there a movement to do this?" I asked.

"Because, as I said, the American people don't want it. And, if a movement was afoot and caught the public imagination, the powers that be would marshall out their forces and predict doom, anarchy, and chaos. And we would succumb to it. And nothing would change."

"Worse yet," Dave said, "they'd expand the role of the juryless trials in our legal system."

Mac smiled. "You're becoming as cynical as I am," he said.

"Then there actually may be no hope," Dave said.

"That's how I feel."

"Aren't you afraid of stirring up some bureaucrat or some other powers and getting into trouble?" I asked.

"No," Mac replied.

"Why not?"

"Because no one is going to listen to me. You could publish stuff like this, but it would change nothing. That's how we're bringing a dictatorship on ourselves."

Dave looked up at the clock. "Well, let's see what you've given us so far: You've said we're losing our rights, we can't blame the people depriving us of our rights because we're doing it to ourselves, and we could change these things—some of them, anyway—but there aren't enough of us to do this at the polls, but we could do it

in the courtrooms, but our government is already putting measures in place to prevent that. So, it's hopeless, and we have only ourselves to blame for it."

He stood up. "You guys want to head down to the local pancake emporium and talk about this over breakfast?"

"Sure," I said and stood up myself.

"You hungry, Mac?" I asked.

"Yeah," he said as he stood up and yawned.

As we walked out the door, Dave looked at his pad of paper. "Do you actually believe these new rights, these things you refer to as..." he looked back at the pad, "...legal rights are a step in the direction of a dictatorship?" he asked Mac.

"Sure. I'll explain it over breakfast."

And we went out the door.

In the Jan./Feb. issue Mac, John, and Dave will discuss how the invention of new *legal* rights and *collective* rights, the results of the Civil Rights Act, the Environmental Protection Act, and the American Disabilities Act are being used to empower government and special interest groups and to abrogate our natural rights.

In later issues they will discuss how Presidents unconstitutionally bypass the legislative process with Executive Orders, which include among them provisions to suspend the Constitution for indefinite periods; how bureaucrats are putting themselves beyond our reach with juryless trials; how the government now uses businesses including banks, airlines, and even manufacturers of paper to get around the Fifth Amendment and conduct warrantless searches; how the government will eventually control the Internet, how the conversion of the military from a "citizen army" to a professional army is a danger to us all; and how all the time we were fighting communism, fascism was put into place in this country. Δ

Hungarian venison stew

By Tom R. Kovach

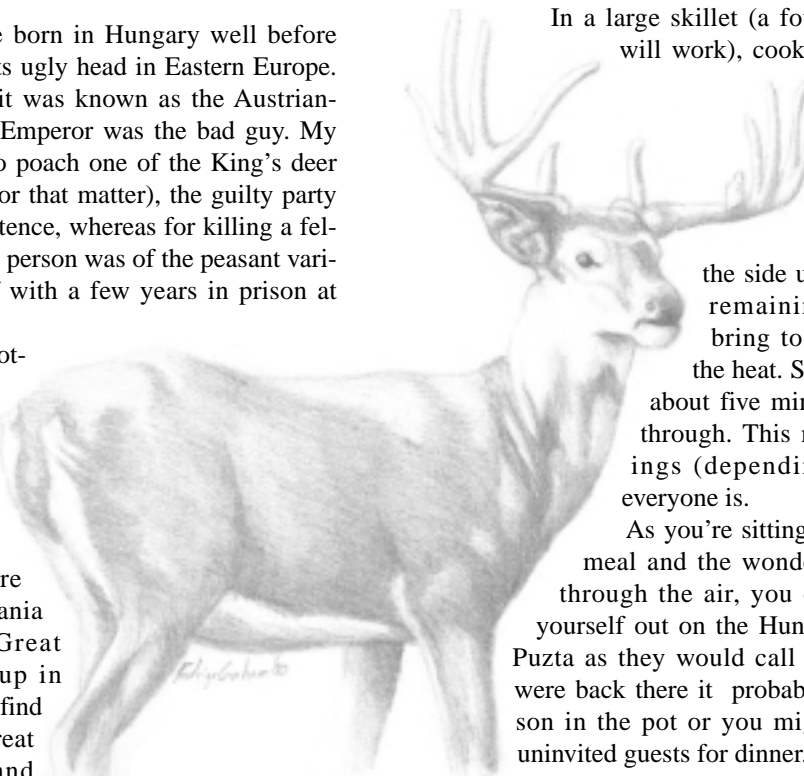
Both my parents were born in Hungary well before communism reared its ugly head in Eastern Europe. Back in those days it was known as the Austrian-Hungarian Empire, and the Emperor was the bad guy. My father used to tell me that to poach one of the King's deer (or even one of his rabbits for that matter), the guilty party could be given the death sentence, whereas for killing a fellow human, especially if that person was of the peasant variety, the killer might get off with a few years in prison at most.

My folks weren't into shooting deer when they were still in Europe, but that changed once they came to America. My father worked in the coal mines of West Virginia and lumberjacked in northern Michigan before buying a farm in Pennsylvania (which he lost in the Great Depression). But it was up in Michigan where he came to find that harvesting deer was great fun, led to good eating, and didn't lead one to the gallows.

Both my parents were great cooks, and when they came to north-central Minnesota in the early 1930s, they found wild game aplenty and adapted many of their Hungarian recipes to wildlife ingredients. Here's one of my favorites and one that I can make with reasonably good results. There could be a bunch of names for it and several versions, but I'll just call it Hungarian venison stew to simplify matters.

Ingredients:

1 lb. (or a little more) of chopped venison (ground venison works, too)
3 slices of bacon, chopped
1 medium green pepper cut into 1-inch pieces
½ cup onions, chopped
4 cups chopped, cooked potatoes
1 glove garlic, minced
1 16-oz. can tomatoes, cut up (or fresh or frozen)
1 10¾-oz. can condensed tomato soup
1 tsp. sweet or hot Hungarian paprika
dash of salt
dash of pepper



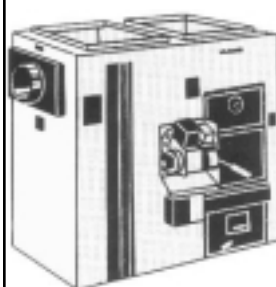
In a large skillet (a four-quart Dutch oven will work), cook the venison, bacon, green peppers, and onions until the meat is browned and the vegetables are tender. Boil the potatoes in a pan on the side until done. Stir in the remaining ingredients and bring to a boil, then reduce the heat. Simmer uncovered for about five minutes or until heated through. This makes about 4 servings (depending on how hungry everyone is).

As you're sitting there enjoying your meal and the wonderful aroma drifting through the air, you can almost imagine yourself out on the Hungarian Plains, or the Puzta as they would call it. Of course if you were back there it probably wouldn't be venison in the pot or you might be having some uninvited guests for dinner. Δ

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Make your own insulated waterer

By Clay Sawyer

Wintertime and extra chores go hand in hand including the everyday fun of thawing the water buckets for the animals. I'm well aware of those electric submersible water heaters for water tubs, but I have an idea that doesn't need electricity and thus saves a little on my monthly winter bill.

Sawdust is nearly a wonder by-product and has many uses. Among its properties is that it is as an excellent insulator. With this in mind, while dealing with rock-solid water one morning, I came up with a solution to frozen water buckets that helps shorten chore time.

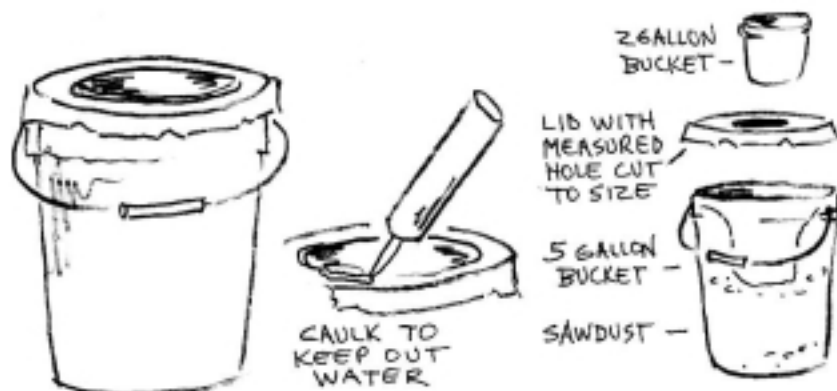
Though realistically, at sub-zero temperatures, the water in my insulated waterer will occasionally freeze, making this waterer is worth the effort.

For materials you will need a two-gallon bucket, a five-gallon bucket, a lid from a five-gallon bucket, some sawdust, and caulk. These are things you more than likely already have in the barn.

Begin by measuring and cutting a round hole in the top of the five-gallon bucket lid. The hole should be just wide enough so that the two-gallon bucket will rest easily and snugly without passing through the lid. Remove the handle from the two-gal-



One of the finished insulated water buckets that sits in the author's yard.



With two buckets, some sawdust, and caulk you can make an insulated water bucket for your animals.

lon bucket and just before placing in the hole, caulk. (See drawing.) Next, lay in a bed of sawdust inside the five-gallon bucket. Pack firmly and allow room for the smaller bucket. Now seat the lid with the two-gallon bucket attached into the five-gallon bucket and snap on tightly. Fill with water and serve.

A box step on either side will give younger birds easy access. Height is perfect for older turkeys, hens or ducks, and larger animals. Δ



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Home canning safety tips

By Liz Case

Like many who were born shortly after World War II, I grew up in a family with a solidly “city” lifestyle. My mother saw canning as drudgery. For her, commercially prepared food, especially TV dinners, were the only way to go. But commercially prepared products can come with questionable chemicals, among other problems. Today, home canning is a simple way to take greater control of your health and well-being, and of your budget.

When I moved to a remote, rural area with my husband, an enthusiastic home canner, I quickly saw the value of preserving food ourselves. As a result, I trained as a Master Food Preserver in a program run by the United States Department of Agriculture (USDA) through my County Extension office. I went on to teach food preservation skills classes.

From these experiences, as well as my own food-storage background, I know that there are some details that no one else ever seems to tell you.

Updating your recipes

Articles on canning typically recommend that you get “a good canning book” with comprehensive processing and safety guidelines. That’s leaving way too much to chance, as I found out in one of my first class sessions.

One lady regularly used her grandma’s high school, domestic-science textbook, copyright 1918. Another had been using USDA pamphlets dating from the 1940s. Several of my students had the highly-recommended book *Putting Food By*, first published in 1973. Old copies still circulate

through rummage sales and thrift stores.

All of these sources were reputable in their day, and everyone wants to know, “What’s wrong with them now?”

A lot of genetic engineering of fruits and vegetables has gone on since then,



along with a lot of research and development in preservation techniques. Together, these developments have made food preservation more precise and much safer than it was years ago.

For example, in the 26 years since *Putting Food By* first came out, science has produced tomatoes with improved disease and pest resistance. They’re also much lower in acid than the ones grandma grew. That means they must be processed differently than grandma did hers.

The most accurate, up-to-date, and dependable guidelines are in the current bulletins put out by the USDA, available at a small cost from your

local county extension office, or from the Consumer Information Center (see resources sidebar). Read these pamphlets carefully, and follow their instructions, regardless of what your recipe may say.

If you compare the processing requirements in these new pamphlets with the current versions of classics such as the *Ball Blue Book*, you should find that they are identical. If not, it’s a good idea to cross out the old instructions in your recipe and write in the updated ones, such as processing time, or canner pressure. This way you can still use your heirloom recipes safely.

A final note of caution: check yearly with your county extension office to see if any of your pamphlets have been updated. If so, they will have new pamphlet numbers. It’s always best to work from the most recent information.

Maintaining your pressure canner

People who use pressure canners often think they last a lifetime without maintenance. No, no, no! Several features of pressure canners need to be checked regularly or replaced to keep the canner in safe working condition.

Gaskets: Most pressure canners use a rubber gasket or sealing ring in the lid. These rings will dry out, crack, stretch, harden, or become damaged with time and use. Steam-borne food particles can work their way around the gasket. When any of these things happen, the canner will not maintain pressure properly. Remove and carefully inspect the gasket and replace it if necessary. You can often find replacements at hardware stores or

Ever heard of an old-time way of preserving eggs called waterglassing? It's a method that won't win many converts today, but for someone who needs to reduce their dependency on refrigeration, it might be worth a try.

Hens naturally lay more eggs in the spring. There are ways to even out the cycle, but people who keep hens will still likely have spells of heavy or light production.

Where refrigeration was either unavailable or too expensive, old-timers often kept their eggs and milk fresh longer by loading them into a bucket and lowering them into a deep well. (They also developed egg-free recipes for those times when they simply had to do without.)

Water glassing was also fairly common, and I always wondered how it was done. When I finally found directions

for the process, I realized why it had fallen so thoroughly out of favor. Beyond storing the eggs in a cool dry place, waterglassing calls for them to be immersed in a slimy, unappetizing liquid.

Waterglass is a sodium silicate solution, obtained from a druggist. One pint of water glass is mixed with 9 to 10 pints of boiled, cooled water. The solution is then poured into a scalded storage crock (or a 5-gallon bucket), and the eggs

are immersed in it. The slimy solution seals the porous eggshell against air and moisture and thus retards spoilage.

Keep the fluid in the crock at least 2 inches above the eggs to allow for evaporation. Add

more boiled, cooled water to maintain that level. Keep the crock tightly sealed and in a cool place. The solution isn't poisonous, but you have to be careful to rinse the eggs well before you use them.

Anyone for canned eggs?

from the manufacturer. Never use a pressure canner that has a bad gasket.

Dial Gauges: You should also test your dial gauges for accuracy once a year. Like other mechanical devices these gauges can malfunction. They can also become inaccurate from the hazards of use, such as being accidentally banged against something, or storage, such as exposure to extreme heat or cold during the off-season. Ask your local extension office how you can have your gauge checked.

Safety Plugs: Pressure canners have safety plugs to prevent explosions by releasing the pressure if it becomes dangerously high. They may be metal, designed to melt under extreme pressure, or when the canner boils dry; or they may be composition rubber, which are blown out by high pressure. Either can become damaged in the same ways as a gasket or gauge. Replacements will probably have to come from the manufacturer.

Vent Port: Finally, a pressure canner will have a vent port, used with either a weighted gauge or petcock, which the user can control to release or hold pressure in the canner. These can become clogged with particles of food. Clean them by drawing a string through the opening.

Anyone who uses a pressure canner should always keep three things on hand: replacement parts, a manufacturer's guide for their specific model, and the USDA pamphlet on pressure canner maintenance (see resources sidebar). Don't wait until something breaks. Check your canner now and contact its manufacturer. Your county extension office or local library should have the manufacturer's address or toll-free phone number.

Disposing of spoiled food

Every home canner will occasionally have jars that spoil on the shelf. The need for safety here can't be overemphasized. The organisms that spoil canned food are uniformly poisonous to humans, especially in the quantity present in a bad jar of canned food.

The most potent spoilage organism in low-acid foods is botulism, which produces a powerful neurotoxin that will shut down your nervous system. Low-acid foods that have spoiled should be disposed of with the utmost caution because the botulism toxin can be absorbed through the skin. I'm going to detail the most cautious handling methods I know.

First, when you find a spoiled jar, put it down immediately and wash

your hands. Prepare a sanitizing solution of $\frac{3}{4}$ tsp. bleach to 1 cup of water, preferably in a spray bottle. Sanitize your hands with this solution and then put on rubber gloves. Now you can dispose of the spoiled food one of these three ways:

Disposal method 1: Put the jar in a heavy plastic bag, twist the bag shut, turn the bag inside-out to cover the jar with a second layer of plastic, and securely seal it shut. Then send the whole shebang off to the local dump. Use the sanitizing solution and a paper towel to clean up any dribbles or splatters, including on the shelf where the jar was stored and on the sides of the surrounding jars. Then wash and sanitize your rubber gloves while still wearing them.

Using this method, you'll lose your canning jar, but this is often the best way to handle the situation.

Disposal method 2: Put the jar in a plastic bag, and take it to the bathroom. Carefully open the jar over the toilet and pour its contents into the bowl, flushing several times. Put the jar back into the bag, and carefully clean both your rubber gloves with your sanitizing solution. Use the same solution to clean the toilet, which may have gotten splattered with canning

liquid. Then take the bag with its jar and soak it in more sanitizing solution (a ratio of 1/8 cup of bleach to each gallon of water). After 15 minutes or so, drain and dispose of the bag, and wash the jar.

Disposal method 3: Put the jar in a plastic bag and take it outside. Dig a deep hole (2 feet or more) and bury the contents. Clean the jar and your gloves as described above.

This last method has at least two major drawbacks. First, conditions may exist such that you may not be able to get outside and dig the hole right away (such as with frozen ground). Second, a determined animal may still be able to dig up your buried jar. If the animal gets any of the spoiled food on its fur the botulism toxins can be easily transferred to other surfaces. In the case of a pet, this is a real danger to humans who pet it. For this reason, spoiled canned food should never be composted or put into a worm box, either.

This would be a good moment to discuss a common attitude about food preservation: "My grandmother (or whoever) always did it this way, and she never had any spoilage. Why should I do it any differently?"

Whenever I'm asked this question, I reply that, aside from the new, low-acid foods, I know of three possible reasons why you shouldn't do it the way Grandma did:

The first is that Grandma probably didn't live in a house that was well insulated and centrally heated. The warmest spot in her house was near the wood stove, and the farther away from the stove you got, the colder it was. Her storage space (a pantry, basement, or root cellar) was probably in a cold area that stayed just above freezing during the winter. Grandma's canned goods were, in effect, refrigerated, and that contributed mightily to their keeping value.

A second possible reason is that, prior to World War II, people were less likely to amass canned food reserves in excess of a year's needs.

Resources

The Ball Blue Book, *The Ball Home Canners Catalog*, and home canning equipment and supplies are available from:

Alltrista Corporation
P.O. Box 2005
Muncie, IN 47307-0005
1-800-859-2255
www.homecanning.com

The Kerr Kitchen Cookbook, a home canning and freezing guide, is \$3.50 plus 50 cents S&H, from:

Kerr Glass Mfg. Corp.
P.O. Box 76961
Los Angeles, CA 90076

A home canning and freezing guide is one of many federal publications available from:

Consumer Information Catalog
Pueblo, CO 81002
1-888-878-3256
www.pueblo.gsa.gov/cicform.htm

Bulletins available through your county extension office may be specifically revised for your geographic area. Look for ones on caring for pressure canners, canning tomatoes, vegetables, seafood, and fruits.

For miscellaneous questions about food preservation, check your phone book for your local County Extension office. Find out who your extension agent is, if they have any master food preservers registered, and what USDA pamphlets they stock. In some states smaller counties share agents. If this is the case with you, find the nearest county that has a staffed office, their office hours, and names of volunteers you can call for advice during off-hours.

If you run into trouble on a hot Sunday afternoon, the expense of a long-distance phone call is nothing compared to the loss of a batch of food or the risk of food poisoning.

The more primitive, labor-intensive gardening methods, as well as the lack of well-paid, year-round employment, meant that most people did not have their home-canned food last them all the way until the next harvest.

A third, less pleasant reason is that because botulism is odorless, colorless, and tasteless, many people probably succumbed to it without anyone knowing what had made them sick. Today we often take for granted the technology that can pinpoint the cause of an illness. Even a generation ago, food poisoning often went undiagnosed, or was mistaken for something else.

Canning is a fine home craft. Keeping a balanced assortment of home-preserved foods in your pantry gives you a wonderful sense of security and accomplishment. Best wishes to everyone who gives it a try. Δ

I look around
as I sit
on the tall
green
grass.
I see something fall,
not like a stone
or water,
but like a feather
or butterfly.
And more fall,
one after another
like orange,
yellow,
and brown angels
floating to the ground.
They just let us know
time keeps moving.

Meaghan Silveira
Brookings, OR

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Letters

(Dear Readers - Thank you for writing to Backwoods Home Magazine. The opinions and suggestions we receive from our readers are very important to us. We regret that we are no longer able to print or individually respond to every letter received due to the volume. We do read every letter received, and pass them along to the editor or writer concerned. We print a selection from our mail that best represents the views and concerns of our readers.

— The Editors)

“Stupid people” editorial

In response to Sept./Oct. 2000 BHM commentary, I charitably believe your secular view of history is very limited. In the mid-seventeenth century, Spain was building a civilization for almost 200 years in the new world. The highest skilled European tradesmen, stone masons, metalurgists, quarry miners, bridge builders, castle builders, engineers, cathedral architects, etc., came to the new world. Spanish accomplishments in the new world (Universities, architecture, building a culture) etc. set off the greatest colonization efforts the world has ever seen. The competition among the British, Portuguese, French, Dutch, Danes, Russians, and others was unprecedented & contributed greatly to a very dynamic, full life for untold millions of people, both European & New World. Not everybody was subjected to oppressive aristocracy & clergy, as you contend. Your fear & almost bigotry for clergy borders on hysterical. The “Enlightenment” brought us destructive Atheist Philosophers which brought us Marxism. Marxist, totalitarian countries have killed about 100 million people in the 20th century & you’re worried about clergy.

I write this letter in friendship & genuine respect for all of BHM. I will continue to subscribe, because you have an A-1 magazine with an excel-

lent staff & family & subscribers, plus you like micro-brews.

Perhaps, in your pursuit of happiness, you will acknowledge the greatest event in history, by far, not the “Enlightenment”, not the “Discovery of the New World,” but the Incarnation.

Bob Hagarty, Viola, WI

It took me a while to stop laughing out loud after reading the last line of your article. It about knocked me out of my seat!

And they now read this commentary and ask themselves, “What the hell is he talking about?”

Too funny! The sad part is it’s true.

Alan L. Lundy

www.safestcrime.com

Canning cheese

We did our first back-to-the-land move in 1976 to Sarona, WI, and built a nice house on 40 acres, had chickens, a large garden, our own pure well water, wood heat, and all the rest. After ten years we decided it was just too cold and moved back to Arizona where it has taken us another ten years to figure where we want to live. We found 40 remote acres in a fertile valley outside Willcox, AZ. The water table is higher than most areas, and the views are spectacular. We are planning to build a small passive solar house to take advantage of the almost constant sunshine, and add solar panels as we can afford them. We have a gas refrigerator but have decided not to buy a separate freezer. This means I have had to rethink my usual way of doing things. We can grow food here almost twelve months of the year, so we won’t have to store as much as people in cold climates. However, since it’s very hot here, and

I’m not sure a root cellar will work, I’ve decided to dry and can most of our food.

I have greatly appreciated the letters telling how to can milk, nuts, butter, meats, etc. However, I’ve not seen anything written about canning cheese or eggs. I’ve seen recipes for canning pickled eggs, but what about canning boiled eggs in a weak brine or canning scrambled eggs? Has anyone tried that? I’m not crazy about pickled eggs and don’t think they would taste good for breakfast or chopped up in potato salad. I’m looking for a way to keep eggs that can be used as they come out of the container. I plan to try the weak brine method and will let you know how it turns out.

As for the cheese, I did try that. I canned mozzarella cheese by placing hot, clean ½ pint jars in hot water and dicing the cheese into the jars. It will melt down so you can see how full the jars are. Then place the lids and rings on and water-bath them. I boiled them too long (40 minutes) and the cheese turned yellow. However, this didn’t hurt the taste or the texture. (Can anyone tell me how long to boil them?) Let them cool completely before opening. When you open a jar, slide a knife around the inside of the jar to loosen the cheese and it will slide right out. It is just as fragrant and rubbery as before, but it grates more easily! I canned the cheese four months ago and it seems to be keeping just fine. I’m going to try canning cheddar cheese next time.

Donna J. Miller, Willcox, AZ

More guns, less crime

I finally went out & purchased a copy of ‘More Guns, Less Crime’ by John R. Lott, Jr. I read the whole thing over the past few days. Before I purchased it, I read a bunch of reviews on Amazon.com (which of 94 reviews, showed a 4.5 out of 5 possible points as positive!)

I also surfed the net in the middle of this reading period (two chapters into the book) and found lengthy responses to an article written by Mr. Lott for a magazine, and also, that same website showed related anti-gun-discussion-John Lott websites, which I also read a bunch of.

I am not democrat, republican, liberal, conservative, 'green' or any other single label group. All the groups have some valid points, same as many religious philosophies.

*What I found to be most interesting, among a large variety of surprising results of his analysis—is that women, blacks & old people—especially in large cities—would seem to benefit the most, at the least financial cost (& other, if you consider less murders, rapes, assaults, etc in non-financial terms) by the increased permitting & carrying of concealed weapons—out of a variety of solutions proposed to reduce crime! What is **IRONIC** is that it is usually the 'right-wing' 'gun-zealots' that support the use of guns & the 'left-wing' 'socialist-big government folks' that oppose it.*

*In other words, the people who listen to the media telling them guns are bad & stay away from them are **PRECISELY** those who would benefit the most from having a few more around!!!! The anti-gun lobby has yet to come up with a solution that achieves anywhere close to the crime reduction results that concealed-carry permits appear to, or any solution at anything close to the relatively low cost!*

I live in a city of a few hundred thousand, in a less-than-wonderful neighborhood. I personally own rifles, and recently added a shotgun to my collection of defensive tools. I have had a dog (or two) for the past 15 years. I also recently (after an incident last year in my front yard), acquired a cellular phone. Most of these added somewhat to my feeling of personal security. I am also

investigating alarm & video security systems (& or course, moving to the country!).

My next door neighbors house was recently shot at multiple times, by someone with a medium caliber weapon, who walked up close to a window at the side of the house, and fired, grazing one of the occupants. I was not home at the time. I am glad, because I already have been in the hospital twice for a heart-stress problem, and hearing the shots & resulting 9 police cars & commotion would have 'stressed me out' for weeks. I have asked neighbors about the situation, and heard nothing, as well as seeing almost nothing in the paper about it (I did walk over & see the 4 large bullet holes through the house wall & window), so I don't know the motivation. I have owned this house (& lived in it) for 15 years. I cannot afford to move to a less populous county (yet!).

After reading this book, I plan to apply for the New York State Pistol Permit, with Concealed Carry allowed. I understand it will take as long as 6 months to get the permit. I hope I will never need it, especially between now & when I receive it.

*I would prefer not to have the responsibility of securing the weapon at times when it is not on my person, especially when I have to leave it in a car. I have personally witnessed long response times from local police, and believe me, when you are having a discussion, by yourself, over your little yard fence, with 15-20 people who are screaming at you, **SECONDS** feel like minutes or—forever—waiting for the police to arrive. (Not that I would have brandished a weapon in that case—that would have inflamed the situation—also, my girlfriend, who called the police, was inside, knew where the rifles were & how to use them, but did not yet feel a need to even get them out—though she said she thought about it.)*

*Unfortunately, I see no other choice than to arm myself—more for peace of mind than expectation of even having to show the weapon—it would be available **IF I NEEDED** it.*

Thanks for a great, thought provoking magazine. Please continue to bring up issues like these.

John B. Reinhard
reinharj@frontiernet.net

Self protection

Great magazine, thanks for a well designed website. My 5th renewal is forthcoming.

*To those that believe that I don't need a gun, let me relate a story. I work 200 miles from our home in the woods. I received a call from my wife detailing some idiot that was making the rounds in our rural community, passing along death threats, vandalizing whatever he could find to make his point, etc. This, she said, had been reported to the sheriff's department about an hour previous, and no one had seen a deputy at that time. Being concerned for the well being of family and friends, I left work, and started the 4½ hour drive home, hoping that law enforcement would appear, but knowing that my neighbors would already be circling the wagons. Well, law enforcement **DID** appear, just long enough to pull me over for speeding. He asked why I was in such a hurry, and I told him. His response was that he was headed to the same place, and he would follow me. Which he did. Which put him on the scene 6 hours after the initial call to the sheriff. To make a long story short, he said to defend ourselves as best we could.*

That was a few months ago. Now, in the political season, the sheriff running for reelection makes regular trips out our way to try for some votes, but admitted during an appearance that the nearest deputy lives thirty miles away, and that law enforcement coverage was in effect as good as it was going to get. (Not a

good way to get reelected, at least lie about it, huh? Tell us you'll be out more after the election).

All this to say that our area would be an especially east, low risk target area for criminal activity, were it not for the fact that most, if not all, of the residents are armed. Being in a backwoods environment forces one to look at a firearm as a tool much like a hoe or a post hole digger. No one likes to dig post holes, but when the fence is down, it's better than using a spoon or a shovel. Many don't like to keep a rifle readily accessible in the home, but it's a more positive response in a time of danger than clutching a phone wistfully, counting the minutes and hours it will take for law enforcement to respond to a call, and praying that the situation doesn't deteriorate in the meantime. After all, a criminally minded person will respond faster to the sound of a 20 gauge pump shotgun chambering a shell than to a plaintive cry to 'go away, I've called the sheriff'...

John Clawson
mujohn@hotmail.com

Homestead helpers

I had to write to thank you for the "Homestead Helpers" idea you gave on the "Heated Paint Storage". (An old refrigerator).

I'm a sign painter—muralist and many times lost quite a bit of paint I had stored in my shop because of a cold snap and my heater didn't kick in.

I just got a new refrigerator & put the old one in the garage until I got a chance to dump it. Now it will be relocated to my shop & I already put in an order for two more old ones from a customer who delivers appliances & picks up the old one. Thanks.

Ed Murphy
Port Jefferson Station, NY

Alaska homestead

Thank you for such a great magazine. There are so many books in your bookstore I cannot afford them all.

Add more that is not wanted so I won't feel so bad about wanting them all or at least most of them.

You see I have, with my husband, a real homestead in Alaska that you can only get to by plane or walk 5 miles after a plane and boat trip or in winter there is 2 more options: dog team or/and snowmachine.

So books are real important to us to learn how to or just something to keep us busy on those too cold to do anything outside days (—20° not too bad but anything —40° you don't do or go anywhere outside).

Thank you, please send 2 "The Declaration of Independence and the Constitution of the United States of American" for I want to give one to my husband for a birthday gift in November.

Tina Cook, Yenlo Hills, AK

Alpaca sheep guard

I read with interest the article on using Llamas to guard sheep flocks.

Here in Australia we have a major problem with foxes that were introduced for hunting. They are a significant predator of native animals and of young lambs.

A number of farmers are now using Alpacas to protect their flocks. The Alpaca seems to have a pathological hatred towards any dog or fox and they have found that they have more lambs alive than previously.

In 1998 I estimated that I lost some 80% of my lambs to foxes out of 250 breeding ewes. In 1999 I lost about 10 lambs to foxes and hopefully this lambing season which started yesterday (cold and wet of course) I'll lose none.

Alpacas are cheaper than llamas here and a male wether costs around US\$240-US\$350. They are best in pairs to keep each other company but also to provide better coverage of the flock. Merinos tend to stay as a group while the Border Leicesters I run are independent

sheep and are more aggressive towards dogs but not foxes.

Douglas Costello
Central Victoria, Australia

BHM pretenders

In my quest looking for my own personal "Backwoods Home", I have for some time subscribed to the Rural Property Bulletin. I am extremely disheartened to find advertisement in the publication for no less than TWO apparent knockoffs (read "ripoffs") of your fine magazine. The most blatant is "BackHome—Your Guide to Self-Reliant Living". I know they say imitation is the most sincere form of flattery, but can they also say "copyright laws?". I assume that you are aware of this, but since I had not noticed anything in your magazine regarding this, I thought I should let you know. Been with you since issue #3, and enjoy every issue more than you can imagine. Let's make sure family and friends know that the one to subscribe to is spelled BACKWOODS HOME MAGAZINE!!!!!!

Gregg Widel
completehome@webtv.net

Pretenders are like bad restaurants. They hang around awhile, selling bland food, then fold. — Dave

Stringed stringbeans

In response to what I see as a need, in food preservation as our "Gramps" and "Great-Gramps" did it, I am sending you yet another way, besides the Icehouse I sent earlier, to preserve food, in this case the ever-so-prolific green bean—which GENERALLY produces FAR more food than folks can eat in the summer. What I'm referring to is string-drying, or, as my Granny called it, who was a Hazard, KY "Hillbilly", "Stringbeans".

To make "Stringbeans", you get FRESH greenbeans, snap off the hull ENDS, and then, take a needle, poke thread through it two arm lengths

long, tie the two ends together, and thread on a "fat" bean as a "Stopper", wrapping the thread around it twice, tying it to the bean. Then, take a bean, poke the needle through it, repeat-repeat-repeat, until the "string" is full, then cut the string near the needle, and tie the two ends of the string together, making a "necklace" of beans! Hang the bean string in a dry, well-aired place, out of direct sunlight, like near the cook-stove, heater, or doorway, so they can dry. When the beans are dry, the string will weigh only 1/4 the green weight, the beans will be shriveled, brownish colored, and will "rattle" when shook or moved.

In this stage, the beans can be kept for YEARS, although they were usually "used up" by April—when the NEW beans were being PLANTED! To USE—take off the string, WASH WELL!—put in pot as you would "shelled 'dry' beans", let soak as you would them—overnight in the 'fridge, drain, then put in water to cook, as you would the "dry shelled beans", seasoned as you like beans! They are "ready" when you can take out a bean,—COOL IT!—and gently pull it apart with no more force than a piece of the bacon you have in them. YUM-YUM-YUMMY! Four bushels of these beans will feed a family of FOUR all winter into next spring.

H. L. Baggett, Tennessee Ridge, TN

Tattered issue

You can well imagine how perturbed I was to return home from an ill-fated vacation to the Midwest (my grandma died while we were there!) only to discover in the pile of mail we picked up at the Post Office the COVER ONLY of the Sept/Oct issue of my favorite magazine! Oh, to be so teased and taunted by the tattered cover of what promised to be yet another entertaining and useful issue of Backwoods Home!

I wonder now what I shall do (as I am in the process of setting up my

own remote home) if a lamb should wander by...or how I might convince others to supplement my own clawhammer banjo playing...or how to turn all that lard in my freezer into a home-grown version of Ivory...let alone the important matters of setting up my water system or storing the garden's bounty! I am undone!

What shall I do, Dave? The Postal Service feigns ignorance as to the fate of my magazine, and denies responsibility for the disappearance of its contents. Just what you'd expect from the withered benevolence of Uncle Sam, I guess! But my question is...will you guys furnish another copy free of charge, or must I send you some money, as for a back-issue, or what? I must have it...I'm an addict, and a long-time one at that... 'gotta have my fix of Backwoods home, or I'll go into shock.

While I'm buttering you up, let me say in all seriousness that I love the magazine, and that if you did offer a lifetime subscription, I'd forward the money if I could afford it. We backwards (I mean backWOODS!) types need to support one another, and I think you guys do a superb job. Not that I agree with every point you make, but we're on the same team, and are struggling to achieve the same goals. Keep up the good work.

Will look forward to your reply, and anticipate full satisfaction as always. Tell John "Hey" from down South, and that even though some of his poetry is WEIRD, I appreciate it!

Yours in the Coastal backwoods,

Adam Henderson
grizzlya@belhavennc.com

We had several complaints such as yours this issue, and we sent them all a new issue. Don't know what happened, whether it was the printer's machinery or postal machinery that messed things up. We do have a lifetime subscription, by the way, at a cost of \$500.

-Dave

Applause

I thought I'd take this opportunity to thank you for the time and effort you put into your magazine. It is nice to know that there are other people who have many of the same view points as myself.

It is my opinion that you folks have a good bit of common sense and a sense of humor both of which are hard to find in this world of (Politically correct HORSESHIT.)

Forrest Chapman, Whitesboro, TX

Thank you for yet another wonderful issue. I agree with your magazine's view nearly 100%. I just wanted to write in to express some of my thoughts, and to let your staff know that I think they are doing an excellent job.

I'm sorry you have taken some heat in regards to the article on evolution. I thought it was great! It really gave one an idea of time to see it shown in that fashion. Personally, I consider myself a Christian, but I am unable to find any real conflict between the bible and evolution. For that matter, I can't find conflict between the bible and what the scientist call the "Big Bang" either. The first chapter of Genesis seems to have it all, and who can really say what a day in the life of God is. OOPS...Looks like I might take some heat myself. Oh well, don't worry what others may think, just keep up the good work you are doing.

The new Energy Works section is superb! Michael Hackleman has really done a wonderful job with the writing and detail in his articles. So much so, that even a novice like myself can fully understand him, and the system he is discussing. Bravo!

In regards to gun control, I wholeheartedly agree with your stand on the issue. Don't back down. The only way someone will take a gun away from me is to pry it from my cold dead hand.

I would also like to let the readers know that I would be interested in

hearing from them if they have found a perfect homestead in a place with some freedom. Our once rural county now has interstates, high taxes, zoning, ordinances, crime, high land costs, and strict building codes. I have tried to fight these things by speaking out at meetings and writing letters. I even had one letter printed in the paper, but I can't carry the fight alone. Most people here are passively sitting and watching their freedoms being taken away. I can't stand that! They are like cattle being led to the slaughter. At the last meeting I attended, I said that I was off to find a place where people were still allowed their freedom. I don't know if that place really exists anymore, but if it does, and you have found it, please write. Especially if it is located in the South or West. Also, please don't write if all you want to do is fuss about evolution. You have your opinion and I have mine. I respect that.

Jaynelle Louvierre, Cordova, NC

I found your great mag at the bookstore back at issue 55 when Y2K was such a threat. But the reality is that living in preparation is a lot more relaxing than worrying about "what if's". I'd much rather spend my time slowly getting things together than come down to crunch time and have nothing ready. That's why your mag is an inspiration to those of us who can only do a little at a time. Keep up the great job.

Kurt McKay, EAFB, SD

Just wanted to let you know that my husband and I have been reading your magazine off and on for about a year, mostly because it is getting harder and harder to find your magazine.

After reading your view in the July/August 2000 issue we finally decided to subscribe. More and more, Americans are going to have to realize that the Second Amendment is not

about hunting and that they must take a stand for freedom and liberty.

I also wanted to say that even though I am a Christian I totally agree with you on not hiring a religion editor.

Thank you for a great magazine.

Mary & Jim Blackburn
Kittanning, PA

Patriotic American

Though still profoundly desirous and possessing considerable knowledge, fate has decreed that henceforth I should not live remote and self-sufficient. However, I am renewing the gift subscription to BHM which I received from my son.

I am renewing because I believe in our Christian based Constitutional Republic as opposed to the Liberal's agenda of systematically replacing it with an Agnostic Socialist Democracy, and because in you and most of your readers I seem to have found politically alert, ideological, and religious soul-mates.

Since I am a Patriotic American (the antithesis of Liberal Socialist degeneracy), I am an Honest, Law-Abiding, God-Fearing, Pro-gun/2nd Amendment, Anti-Abortion, English First and Pro-School Choice Conservative. Accordingly, I am brazen in my Political Incorrectness. Furthermore I am a computer literate, disenchanted and former but still voting Republican, Libertarian, and a Southron without a trace of racial prejudice and proud of our heritage, as well as a Redneck (by the correct but not by the Socialist's perverted and intentional mis-use of this term).

Therefore in this largely ignorant, misguided, and apathetic state of our present national psyche it is both encouraging and refreshing to discover other kindred spirits of similar awareness, beliefs and activism as I, especially who are in a position to hopefully awaken some of our complacent head-in-the-sand citizens whom the Socialist Elite disdainfully

refer to as the "Plodding Herd" and the "Unwashed Masses". And so herewith, I do my little part to support your excellent enterprise.

Tony Miller, Mt. Pleasant, TN

Escaped being a battered wife

I once had a subscription and every intention of writing to you, but never did. I knew the right time would come, and it is now.

I've wanted to move out to the backside of nowhere for as long as I can remember. I got married 2½ years ago to a man that was gentle, romantic and wanted to move to the country (away from Florida) that is, until after the wedding. After the honeymoon was over I realized he was really a manipulative abusive drug dealer that saw me as a possession. By the time I knew this I was so emotionally battered I honestly believed I couldn't make it without him, and was resigned to enduring the torment my life had become in the cesspool of existence that is central Florida. But God smiled on me. We had a roommate for 2 years that saw or heard it all and knew that under the physical scars and behind the emotional walls was a strong capable independent woman just waiting for her time to shine. He told me when I decided I'd had enough he'd help me leave. It took a year, but I finally did. I spent a month sneaking out "unmissables", & a week at a domestic violence shelter, then ran for my life. We left with 3 kids (14, 9 & 4) a dog, camping gear and a Buick Regal in the back of a 28 ft. U-Haul with \$125 to our names, and opened a map, closed our eyes and put a finger on a spot and headed for the border.

In Florida, I had a 3 bedroom house, a pool, 4 cars, a boat, a camper and 2 motorcycles, all paid for, and I didn't have to work. Now I have 4 tents, a screen room, a rented campsite with no electric or water and a weekly car payment, and

wouldn't go back for anything. I left a lot behind, but I've never been happier because I left behind a man that not only scarred my face, he almost shattered my soul. It has taken time to start the healing, and I have a long way to go, but I'm finally turning back into me! My backbone is coming back, mostly thanks to Scott, and his incredible patience and understanding like no one else could. I fell out of love with my husband long ago, and realized after only a few weeks that what I'd been looking for my whole life was right under my nose! Scott is strong without brutality, firm but not cruel, masculine without all the "macho" crap. He makes me laugh, holds me when I cry, and has made me see life in a whole new way. The best part is curling up in his arms after the sweetest moments of the night knowing I'm being held by my best friend.

So now here we are in the mountains. No one even knows what state but my mother. We have slowly acquired things here & there, but can't find the one thing we need before it gets cold—a canvas "Hilary" tent, new or used. They stopped using canvas years ago. So if anyone has any suggestions on where to get one or its equivalent, we would be most appreciative!

Now the most important part of all this—a Deep Heartfelt Thank You! to all at BHM! The issues from my old subscription were a candle in a very dark world for a long time. Through your pages, I knew I wasn't the only one that wanted to go to sleep hearing nothing but crickets & a giggling creek, (I do now!) or wrote dark poetry (Thank You Silveira) or just wished for the joy of a shelf full of produce I grew & canned myself. Most of all, thank you for helping me see that I can do this! I'll be sending for a new subscription soon, so don't change!

Anyone with information on Hilary tents (or anything else I'd love a pen pal) can send it to me through my

mother, Becki Hudson, 1301 E. Ohio Ave., Deland, FL 32724.

Cherie Lamb

As an anarchist...

As an anarchist I really like Backwoods Home. The only thing I don't like about it are the Christian fundamentalists who think the earth is only 6000 years old. I also disagree with your comments that global warming is a joke. Just look at Greenland. We should be seeing some Viking settlements soon because of the melting! Also, I think capitalism sucks! I believe in decentralized socialism. But that's not going to cause me not to re-subscribe. I'm looking forward to your publication *The Coming American Dictatorship*, because George W. Bush Jr. said in 1999, that "there ought to be limits to freedom." I'm voting for Ralph Nader (Green Party) for president. I urge all who want to resist the tyranny of multinational corporations to do the same! Yours in Freedom.

Richard Clark
anarchyvalley1@aol.com

Grateful trucker

Hey Dave, all I can say is, (Thank you, Thank you, Thank you!!! I'm a trucker, long haul, just me & my dog. I recently pulled into a truck stop that carries your magazine, I scooped it right up! I wish I found your mag. long ago! It's great! I was so pleased with it I called & ordered the 12 Back Issues in the back. I was pleased to see the box when I got home, that's the only reason I went home! As soon as I can I'm going to subscribe for 3 years. Right now fuel is killing me, I own my own truck, so everybody &

their brother got their hand in my pocket, Oil Co., Government, D.O.T., fuel taxes, road taxes, state troopers & their bullshit tickets, etc., etc., the list goes on! The only thing that keeps me going is my dream of going to Montana and building a log cabin & opening a small engine repair. I'm also a carpenter by trade. I keep telling my dog, gona buy ya some land & let ya run! She bin a good & loyal dog, she bin in my truck the last 6 years & never complained once.

Whenever I start gettin down, I reach down & grab one of yor magazines & it brings me right back up! You think some of your readers can help me locate a piece of land up in Montana? Shore would appreciate it. You should try to get your magazines out to the truck stops somehow, all the truckers I've shown your mag. to took the address and is subscribing. You'd do good at the truck stops Dave, there's a lot of good ol boys out here!

Tony Brown, Hamilton, NJ

Live traps

Charles Sanders' article on "live traps," or "rabbit gums," as my grandfather called them, was very good.

Granddad used to set them in his vegetable garden to cut down on the "free-loading," only he made them without the hardware cloth end. This was a mistake, and causes me to add two suggestions.

First, carry a long stick or pole with you when you check your traps, and, by all means, look at what's inside from a safe distance. On one occasion the rabbit inside turned out to be a skunk, and on a second occasion he found a large and very upset stray tomcat.

My grandfather lost both contests.

Paul B. Duvall
pduvall@citcom.net

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Family Cookbook

Each family has its favorite recipes. My grandfather's pickles and my mother's noodle casseroles are my family's best loved foods. I'd like to invite readers of *Backwoods Home Magazine* to send in your family's tried and true recipes to include in what I hope will be your family's favorite cookbook. Please send your family's favorite recipe along with the "story" that goes along with it. A few sentences or a paragraph would be dandy. John Silveira and our friend, Mac, already have supplied the first entrees into the collection.

Send the *recipe(s)*, the *story* or family history behind it, along with your *Name, Address, City, State, Zip*. Please include your *phone* number in case clarification of the recipe is needed.

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The last word

Communism vs. the Kool-Aid stand

I was nine, it was summer, and school was out. I was bored and knew money would solve what ailed me. But, if the truth be known, we were poor. Mom didn't have money, Dad was gone, and nine-year-olds don't have jobs. But I got to mow Mrs. Woodworth's lawn for a quarter and Mom gave me my nickel for allowance.

But even back then, 30 cents wouldn't take a nine-year-old very far. Then I thought of a way to turn 30 cents into something significant and off I went to Millers' Store, up on Fulton Street, where two envelopes of Kool-Aid could be had for 5 cents. I got orange and cherry because I liked them. I figured those were the ones that would sell. With another 18 cents I got sugar. With the last 7 cents I got pennies to make change.

At home I asked Mom for two pitchers.

"You can have one."

"But I've got two packages of Kool-Aid."

She gave me that harried look I've since learned to identify with single mothers.

"Just take four glasses," she said. They were the little plastic tumblers Tupperware used to make.

"Four? That's just four drinks."

She took a deep breath and pulled down a box of Dixie Cups, those little paper cups that used to be coated with wax. "Twelve," I begged.

"Eight plus the four tumblers," she said with a finality in her voice that made arguing useless. Besides, every second spent haggling was time customers were going by.

I mixed the Kool-Aid.

"Just one tray of ice," Mom said.

I nodded and ran out the door.

I asked my friend Eddie to help me. Crazy Eddie. He was an only child and his Dad lived at home. He was wild. He was spoiled. But he could get boxes we could use for a stand. More important, he could get chairs. We'd sit down. Our stand would look "official."

Off we went, me dragging the boxes with the ice, the pitchers, and glasses in them. Eddie dragged two chairs.

It wasn't my first Kool-Aid stand. I knew what I was doing. We set up in the best location possible: right at the top of the rise between Andrew and Foss Streets. We sported a sign that read, *Kool-Aid, 3 cents a cup*. We could see traffic coming from both directions and, best of all, we'd catch the grown-ups on their way home from work when they stepped off the bus from Medford Square.

Norman and Billy came by. They wanted to see what we were doing. I didn't like them hanging around. But as we always said to each other then, "It's a free country."

Then the first bus came. Three people got off. A woman we knew on sight, but didn't know by name, smiled and ordered a cup. Our first customer. She drank a little. "Kind of warm," she said. We were rationing the ice. "But it's good." She said she didn't feel like finishing it. She gave us a nickel and told us to keep the change.

Then a car stopped. A guy got out smiling. He ordered two glasses. He seemed to really enjoy it. He gave us two dimes. Said he was leaving a tip.

I didn't know then why so many of our customers were adults or why they paid more than we asked, but I took their money.

Two more friends showed up. My sister did, too. They saw the money rolling in and wanted to help.

"Everyone go home. I don't want your help," I said.

"You'll get more business if you look like you're busy," my sister said. So she and the others hung around. Besides, it was a free country. They even drank some of my stock telling me people seeing that would stop. Finally, the ice was completely gone, but business was good. Cars still stopped. The bus came every half hour. Then we ran out of Kool-Aid. It was late anyway. We'd had a good day.

"How much did you make?" my sister asked.

I counted. "I've got \$2.10." I took out my initial 30 cents and gave Eddie 90 cents. I had 90 cents more than I'd started with.

"How much do we get?" my sister asked.

"Nothing," I said incredulously.

"You've got to share."

"For what?"

"For helping you."

My other friends agreed. No one asked Eddie.

"I didn't ask for any help. I told you to go away. All you guys did, anyway, was drink Kool-Aid for free. You get nothing." Eddie pocketed his money and we started home.

But nothing involving money ends this easily and though I refused to give up my money from my Kool-Aid stand to people I neither invited nor hired, and who had hung around like mosquitoes, swilling down my Kool-Aid, they took another tack. They went to our parents, my mother included. And, though I was sure I'd get justice here, I was astounded when, after a brief conference among people who were bigger than I, who could spank me, and could send me to my room, their verdict was, "They helped," and "You made a lot of money, anyway. You *have* to share."

"*Have to share?*"

They brooked no argument and stood over me as I divvied up the loot. But no one was going to go to Eddie's house to ask him to share his money. I think even the parents were afraid of him. So I had to split my 90 cents six ways. When I did, I had exactly 15 cents more than I'd started with.

I never had another Kool-Aid stand after that. And what happened the next time I mowed the widow Woodworth's lawn? I took the quarter, went to Millers' store, bought candy, and ate it *alone* in the woods. Δ — John Silveira

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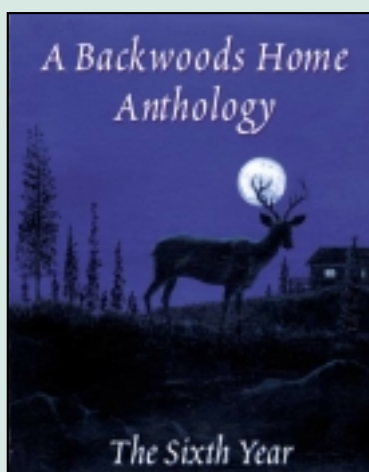
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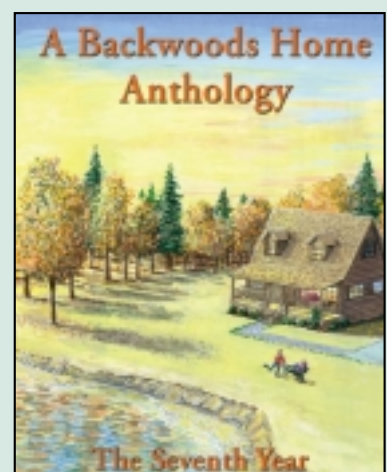
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This book is an excellent introduction to the study of Native American crafts and outdoor skills, including tanning leather to create authentic clothing and moccasins, the basics of the "kitchen," including utensils, cookery, and foods, and games, musical instruments, and jewelry. 216 pages; 6 x 9" ppbk. \$17.95

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Originally published in 1922, this work represents years of observation and experience in the wilderness. Learn to distinguish edible plants from poisonous ones, start a fire using a jackknife, build a four-story birdhouse out of a wooden box, tie a variety of essential knots, identify trees, wildflowers, animals, birds, and constellations, and much more. 590 pages; 7 x 10" ppbk. \$22.95

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This complete, no-nonsense guide, published originally at the turn of the century, dispenses invaluable tutelage on both the history and craft of this grand tradition. J. M. Drew begins with the basics, including how to set up a blacksmith shop, identify and use various essential tools, and select materials with which to work. 100 pages; 4½ x 7¼" ppbk. \$15.95

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This book is for people who need to live on a lot less money. If you have been fired, demoted, retired, divorced, widowed, bankrupted, or swindled—or you just want to quit your job and remain financially self-reliant—this book is for you. In it are hundreds of tips, secrets, and necessary skills for living well on little money. 153 pages; 8½ x 11" ppbk. \$24.95

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Backwoods Home Magazine's very own Jackie Clay revised and updated this classic on veterinary care. Included are methods to diagnose and treat diseases and injuries in livestock and pets. This is the book to have when you have to treat your own animals or to check before you call the vet. Illustrated. 432 pages; 8¾ x 57/8" hdbk. \$25.95

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Anyone who has had mice invade their home knows that nothing is as unnerving as hearing mice scurry across the linoleum in the middle of the night or finding droppings on the kitchen counter in the morning. From mice in the pantry to rats on the rafters, Adler provides dependable, practical advice and innovative methods to help you get rid of your rodent problem for good. 224 pages; 6 x 9" ppbk. \$17.95

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Free yourself from the world of rush-hour traffic and office politics with these easy-to-digest ideas and techniques for establishing and running your own home office. With authority and wit, Gould covers it all—from setting up your workspace to setting up record-keeping systems. Nearly 50 million Americans work from their homes. Why not you?

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The whole-body approach of noted herbal clinician David Hoffmann offers a practical, natural way to prevent heart disease and ease the symptoms of hypertension, congestive heart failure, angina, varicose veins, arteriosclerosis, and other cardiovascular conditions. Discover how herbs can help you live a longer, healthier, more vital life.

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Healthy Digestion is your complete guide to tapping into the power of herbs to maintain a healthy digestive system—with a full directory of useful herbs, preparation instructions and dosage information, and a chapter on simple ways to make your own teas, tinctures, powders, and capsules.

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THE MAPLE SUGAR BOOK

This book is filled with a history of sugaring from Native American to modern times, with practical tips on how to tap trees, process sap, and market syrup. Fifty years after its original publication in 1950, *The Maple Sugar Book* is as relevant as ever to the homestead or small-scale commercial practitioner.

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PRESERVING FRUITS AND VEGETABLES

This book provides a creative answer to preserving fruits and vegetables in times of abundance, making them available on your pantry shelf in times of need. The new, exciting, fully-tested recipes are all described in easy-to-follow steps. From freezing to drying to canning (bottling), together with seasonal tips and gift-giving ideas, this book is the perfect guide for the adventurous cook.

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Saving seeds is a time-honored tradition—one that more and more gardeners are rediscovering. This book will tell you all you need to know about how to raise, harvest, and store seeds for the easiest-to-grow and most popular vegetables and ornamental plants. Each vegetable and flower is discussed in detail.

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With this delightful book, you can garden with hardly any labor except planting and picking. The Stout System of mulch gardening will allow you to throw away your weeding tools, pesticides, and fertilizers, and will conserve and replenish the soil to make plants thrive.

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GROWING VEGETABLES WEST OF THE CASCADES

Grace your table year-round with an array of fresh, nutritious vegetables—straight from your garden. This fully revised edition includes advice on how to select, cultivate, and harvest the vegetables best suited to this region. Whether you want to grow a few tomato plants or aspire to self-sufficiency, you'll find this bible of Northwest vegetable gardening indispensable.

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You know when it's time to mow the lawn, but do you know when and how to prune the tree that is starting to block the view? Move shrubs that are overcrowded? Liven up an overgrown perennial bed? Fertilize and aerate your lawn? Let Lewis and Nancy Hill show you how easy lawn and garden care can be.
188 pages; 8½ x 11" ppbk. \$24.95

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FOREST GARDENING

Based on the model of a healthy natural woodland, a forest garden incorporates a wide variety of useful plants, including fruit and nut trees, perennial herbs, and vegetables. The principles of "backyard permaculture" can be applied in every temperate zone of North America, helping to transform even a small cottage garden into a diverse and hospitable habitat.
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GROWING PROFITS

Turn your love of plants into an enjoyable and profitable business. Learn how to start a nursery in your backyard with virtually no capital investment. In an area of only 1,000 sq. ft. it is possible to generate over \$5,000 worth of plants in a single growing season. A backyard nursery is a wonderful business for the person who wants to make a living from self-employment at home.
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This one-of-a-kind book will save you money, labor, time, and materials in building a small home, barn, or other structure. It is illustrated with plans, drawings, and photographs, and carefully explains construction techniques.
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BUILDING WITH STONE

Nothing can rival stone for its beauty and durability. This book educates the novice and inspires the seasoned artisan. A stonebuilder at any level will learn how to evaluate each stone and undertake each step in the procedure with an eye toward aesthetics and useful permanence.
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HANDY FARM DEVICES

First published more than 75 years ago, this book is filled with a wealth of labor- and money-saving projects, including a portable chicken coop, a small truss bridge, an easy fence-post and stump-puller; gates that don't sag, and much more. It is a combination of nostalgic Americana and helpful instruction.
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THE HOMESTEAD BUILDER

This practical classic, first published in 1872, is filled with handy advice on the best ways to plan and construct dwellings in any location, using wood, earth, and gravel. Includes nonsense instructions on erecting log cabins, slab houses, farm houses, and many others, as well as outdoor ovens, cellars, gates, furniture, and more.
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Straw Bale Building guides the reader through every stage of the design and building process and is heavily illustrated with both architectural quality drawings and photographs of on-the-job action. With its extensive listing of further resources, it provides all you need to plan and then create the building of your dreams.
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Mention "foraging" and many people think of tramping through soggy swamps of trackless wilderness, battling mosquitoes and briars to reap a tiny harvest of nuts or berries. Yet, foraging for wild edibles doesn't have to be difficult, or require expeditionary gear to have surprising and tasty results.
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HOME SAUSAGE MAKING

This book is a combination how-to manual and cookbook. This edition includes new poultry and fish chapters. All recipes have been re-written to reflect lower fat and salt content. Learn dozens of ways of combining fresh, healthy homemade sausage with other ingredients to prepare many dinner treats.
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THE FISH & GAME COOKBOOK

A unique cookbook by the former food columnist for *Outdoor Life Magazine*. Included here are dozens of outstanding recipes, many of which have been neglected by standard cookbooks—venison moussaka, shark tetrazzini, trout with cucumber sauce, broiled goose in mustard sauce, and curried fried squirrel, to name just a few.
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Wild Rice Cooking is a total guide to wild rice: an introduction to harvesting and cooking, as well as a fascinating history of the plant and the cultures that have thrived on it for centuries. This book will appeal to all those interested in getting back to the land, as well as anyone who likes to cook.
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THE ART OF AMERICAN INDIAN COOKING

Over 150 delicious, authentic, and traditional dishes from five North American regions. From delicacies such as Zuni green chili stew and roast pheasant stuffed with grapes and nuts to simple favorites including baked acorn squash with honey and Chippewa wild rice, *The Art of American Indian Cooking* is a sensual journey of color, scent, and flavor across the regions of North America.
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Cynthia Lair is a certified health and nutrition counselor and member of the nutrition faculty at Bastyr University. This is an excellent guide book for families interested in whole, organic, natural foods. Chapters run the gamut from starting your baby on whole foods to including vital vegetables in your diet to making wholesome desserts and natural drinks. 282 pages; 7 x 10" ppbk. \$21.00

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This book is a delightful work in which historians Redon, Sabban, and Serventi rescue from dark obscurity the glorious cuisine of the Middle Ages. Medieval gastronomy turns out to have been superb—a wonderful mélange of flavor, aroma, and color. The recipes are expertly reconstructed from fourteenth- and fifteenth-century sources and carefully adapted to suit the modern kitchen. 285 pages; 6½ x 9½" ppbk. \$21.00

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LIBERTARIANISM: A PRIMER

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Don't fork over all your hard-earned cash to the IRS! Beat the system and do business tax-free. This book shows you how to join the growing underground economy, how the barter economy works, how to run a business off the books, how to stay clear of the IRS, and how to practice free enterprise in an unfree economy. 172 pages; 5½ x 8½" ppbk. \$17.95

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Our Founding Fathers ordained that jurors had the right to vote "not-guilty" if a law is unjust or unjustly applied. This allows us to hold the government to the principles of the Constitution and prevent oppression. But American courts now systematically deny us this right. Read this book and realize your real power as a juror. 311 pages; 6 x 9" ppbk. \$25.50

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Directly challenging common perceptions about gun control, legal scholar John Lott presents the most rigorously comprehensive data analysis ever done on crime statistics and right-to-carry laws. In this edition, Lott has expanded the research through 1996, incorporating new data available from states that passed right-to carry and other gun laws since the book's first publication. 280 pages; 6 x 9" ppbk. \$15.00

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SEND IN THE WACO KILLERS

Your right to trial by a randomly selected jury—not one stacked with jurors who swear to convict in advance—is gone. The IRS can now seize your bank account, paycheck, and house—without so much as a judge's order. Is there any peaceful way back from the toboggan ride to tyranny? The answers are here, by America's syndicated Libertarian columnist, Vin Suprynowicz. 516 pages; 5½ x 8½" ppbk. \$24.95

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101 THINGS TO DO 'TIL THE REVOLUTION

For the concerned citizen who wishes to keep a low profile, protect his or her rights, and survive in the "interesting times" which are sure to come, this book is essential reading. Wolfe lists the supplies you should be laying in and activities you should be engaging in before stuff starts spraying off the fan. She also lists some interesting web sites you should look into. 200 pages; 5½ x 8½" ppbk. \$18.95

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DON'T SHOOT THE BAS- TARDS (YET)

The clodhoppers of Tyranny stomp on the toes of innocent people every day, from flat-out prohibitions of peaceful activities, to flagrant invasions of privacy, to the not-so-subtle erosion of Constitutional freedoms. Author Claire Wolfe has come up with another batch of ideas to follow up the wildly popular *101 Things to Do 'Til the Revolution*. 238 pages; 5½ x 8½" ppbk. \$18.95

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IN THE GRAVEST EXTREME

This is everything you should know before you consider acquiring a gun for self defense. Covers technical, tactical, and legal issues. Author Massad Ayoob, a police officer of many years' experience, is a nationally respected authority on firearms. 132 pages; 5½ x 8¼" ppbk. \$12.95

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SILENCING SCIENCE

Science has been a major contributor to the health and wealth we enjoy today, but not everyone is happy with it. Science can get in the way of social and environmental activists, politicians, lawyers, and government regulators. This book is a tongue-in-cheek "how-to" manual for the concerned citizen annoyed by "pesky" science. 61 pages; 5½ x 8½" ppbk. \$11.00

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